

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-015

30 January 1989

TO: Distribution 

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 30 January 1989

Next Meeting: February 6, 1988 at 10:30 in 301-271

Present: Rob Staehle, Tak Hoshizaki, Randy Cassingham, Paul Henry, Govind Desphande, Leigh Rosenberg

Rob Staehle

Many thanks to Tak Hoshizaki for his hard work on the minutes, help with the case study reports, and keeping track of people and goings-on. His current work has ended, and he is looking for another position on lab. Please contact Tak if you have any work you might need him for.

The 1989 Aerospace Engineering Conference and Show is in LA February 14-16 at the LAX Hilton. Admission is about \$10-20.

There was a Director's Review and Discussion last week with Dick Laeser on Space Station. There may be an expansion of the role of PR&A, though it is not clear if the expansion will be very much considering workforce constraints. Because of this, we may get more SS work in Pasadena later in the year. Dick said that currently, about \$60M/month is being spent on all aspects of the Station. By May 15, spending will likely be up to \$115M/mo. The Bush budget calls for \$170M/mo, with most of the increase in support to the contractors. With changing management in the Program Office in Reston, there is likely to be more emphasis on a top-down engineering approach and much more emphasis placed on system engineering.

Code S POP calls: call 89-1 may be deleted to fix some Program problems, going instead directly to 89-2 around June. Task managers should keep an eye out for opportunities from their sponsors.

Bob Edelson gave an interesting overview on the measurement of "availability" of station resources to users. Availability = system up time divided by total system time (a good measure of Program success). He also talked about reliability and maintainability. Unfortunately, there are no formal requirements in the Program regarding resource availability. These requirements are being drafted for submission to the Program Requirements Document (PRD) and the Program Definition and Requirements Document (PDRD).

Liz Carpenter will be here Tuesday through Thursday. Don Maund will be here all week.

A Space Robotics Technology meeting on R&D will be held Tuesday through Thursday in Pasadena. Jeff H. Smith, John Bosley and/or Cate Heneghan may attend.

A course given by Dan Duesler of JPL will be given in 3-D Television for Space Station Telerobot Applications. Anyone in 31 wishing to attend should call Paul Wiener. Those in other divisions call Dan at x4-6410. Space is strictly limited.

Three 376-xxxx accounts have been opened as of today (for Henry, Desphande and Rosenberg). The following accounts have been **closed**: (all 726-xxxx) -21110, -21112, -21120, -21420, -21501. New Division-signed SRMs need to be in **Rob's hands by the close of business Wednesday** from Henry (376-Attached Payloads), Wong (376- and 726-Disturbance Model), Handley (726-Info Systems), Gabriel (726-Orbital Debris), Turner (376- and 726-POP Assessments), Paul (726-Program Documentation), Staehle (726-Ad Hoc Support) and Rosenberg (726-UOIPG Support).

Paul Henry

Went to the Evolution Working Group (EWG) Transportation Node "splinter group" meeting last week at LaRC. Some very good work was presented. The EWG will be coming up with some preliminary recommendations for the evolution configuration in May, which will go to the AA/Space Station in Spring 1990 or sooner. The full EWG group will meet again this week at Langley, all of the splinter groups will report. Paul will attend.

Early studies show the manned Mars initiative mission would put a severe strain even on the cargo versions of the shuttle (i.e., the "Shuttle C" or the proposed high-volume "Shuttle-Z" configurations). This may imply the need for a very heavy weight launch vehicle.

Got some more clarification from Berry Meridith/LaRC of the work Andrey Sergeyevsky will be performing on mission trajectories. A manned Mars mission will have top priority. JSC is working on trajectory software for lunar initiatives. Andrey indicates that JPL (Section 312) has largely lost its lunar trajectory analysis capability. As a result, the work went to JSC.

A video production of the Mars departure trajectory is still desired. Barry will be sending Rob a letter requesting JPL support and indicating availability of funding.

Leigh Rosenberg

Jerry Oliveri is working with Allan Webb, mapping requirements models into a matrix. Rob asked if he can pull out some info for Code E so we could possibly pursue some issues for them.

Leigh is still trying to contact people at Reston regarding requirements for unpressurized storage.

Will be attending a UOIPG meeting at JSC February 14-16. A meeting at PR&A regarding requirements refinement will also be coming up in late February.

Has been working with Dick Turner on instrument costing for POP servicing.

Lori Paul

Sent out information requests (see attached questionnaire) to gather data on upcoming deliverables. The response so far has been pretty good. All deliverables need to be in her data base for tracking. Anyone who has a deliverable this year that hasn't filled out an information questionnaire is asked to do so as soon as possible.

Govind Desphande

Met with some GSFC folks last week regarding models for SSIS (Space Station Information System) simulations and CDOS (Customer Data Operations System). One note: the DMS will likely not be able to handle data rates in excess of 150 Mb/s.

Randy Cassingham

Randy will be taking over the duties of the weekly meeting minutes from Tak. Please let him know if you have anything for the minutes, or if you have any changes to make to the distribution list.

Space Station Deliverables

Completed or Past Due Date:

1. Title: Space Station User Operations and Cost Analysis
Task Manager: Leigh Rosenberg
Status: JPL work completed, pending approval by sponsor
2. Title: Free-Flying Versus Station Basing for a Sub-Millimeter Wave Telescope
Task Manager: Leigh Rosenberg
Status: JPL work completed, pending approval by sponsor
3. Title: Impact of Payload Reliability Class on Life Cycle Costs
Task Manager: Leigh Rosenberg
Status: JPL work completed, pending approval by sponsor
4. Title: Payload Pointing Accommodations Assessment
Task Manager: Leigh Rosenberg
Status: JPL work completed, pending approval by sponsor
5. Title: Space Station Payload Storage Assessment
Task Manager: Leigh Rosenberg
Status: JPL work completed, pending approval by sponsor
6. Title: Case History Memorandum
Task Manager: Liz Carpenter
Status: Completed and delivered

Deliverables Due During February 1989 (Preliminary):

1. Title: Isolator Model Performance Assessment (White Paper)
Task Manager: Ed Wong
Due: 2-28-89
2. Title: Accommodation of OSSA Payloads
Task Manager: Bob Laskin
Due: 2-28-89

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.4-215

January 30, 1989

TO: Distribution

FROM: Lori L. Paul

SUBJECT: Space Station Task Tracking - Deliverable Questionnaire

In an effort to better track the progress of both ongoing and new (1989) Space Station deliverables, the attached questionnaire is being distributed to those involved in Space Station tasks. Please fill it out as soon as possible and return it to:

L. Paul
Mail Stop 301-285

List each major deliverable on a separate questionnaire form. Please be as complete as possible and print or write clearly. (The SRM account number for each deliverable is particularly important.) If a deliverable has a complex development schedule and/or involves several "sub-deliverables," please attach a copy of a current schedule listing milestones and due dates to the questionnaire. Note the attachment in the comment section (question #18). Make estimates of deliverable due dates as accurate as possible. (The due dates will appear in periodic status reports and other official documentation.)

Please contact me at 4-1166 if you have any questions or problems. Your inputs will be entered in the Space Station Task Tracking Database and used to determine if Space Station tasks are proceeding as planned. You will receive periodic follow-up calls regarding the progress of deliverables in the database.

Thank you very much for your time and information!

SPACE STATION TASK TRACKING: DELIVERABLE QUESTIONNAIRE

1. SRM Task Name: _____
2. SRM Account #: _____ - _____ - 0 - _____
3. Sub-Task Name (if any): _____
4. DELIVERABLE NAME: _____
5. Deliverable Description:

6. Deliverable Account #(s): _____ - _____ - 0 - _____
_____ - _____ - 0 - _____
_____ - _____ - 0 - _____
7. Sponsor (PR & A, SSU, etc.): _____
8. Start Date: ____ / ____ / ____
9. Due Date: ____ / ____ / ____
10. Recipient of the Deliverable: _____
11. Task Manager for Deliverable: _____
12. Task Manager Phone: _____
13. Task Manager Mail Stop or Address: _____
14. Cognizant Engineer: _____
15. Cognizant Engineer Phone: _____
16. Cognizant Engineer Mail Stop or Address: _____
17. Current Status of Deliverable:

18. Other Comments:

19. Info. Source (Person filling out this form): _____

Space Station Utilization Team Weekly Meeting Minutes

<u>Distribution</u>	<u>Sec</u>	<u>Mail Stop</u>	<u>Phone</u>	<u>NASAmail</u>	<u>TELEmail</u>
Beer, Reinhard	322	183-301	4-4748		
Borden, Chet	311	301-285	4-1238		CBorden
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
<u>Bosley, John</u>	<u>311</u>	<u>301-285</u>	<u>4-1754</u>	<u>JJBosley</u>	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
Cassingham, Randy	311	301-285	4-1273	RCassingham	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Crary, Laura	311	301-285	4-1284	LCrary	
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Diner, David	324	169-237	4-6319		
Easter, Bob	120	Reston	8-457-7211	REaster	
<u>Elachi, Charles</u>	<u>700</u>	<u>180-703</u>	<u>4-5673</u>	<u>CElachi</u>	<u>CElachi</u>
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Freilich, Mike	322	300-323	3-7801		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
<u>Glavich, Tom</u>	<u>347</u>	<u>185-103</u>	<u>4-3952</u>		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1066		
<u>Grumm, Richard</u>	<u>355</u>	<u>183-401</u>	<u>4-9267</u>	<u>RGrumm</u>	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
<u>Hixon, Dave</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7220</u>	<u>DHixon</u>	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Hoshizaki, Tak	326	183-501	4-6962		
Ibbott, Tony	383	168-327	4-4107	Albbott	Albbott
Im, Eastwood	334	300-235	4-0492		
<u>Ivie, Chuck</u>	<u>366</u>	<u>506-310</u>	<u>4-6045</u>	<u>Clvie</u>	
Kerrisk, Dan	372	278	4-2566		
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Klaasen, Kenneth	381	168-222	4-4207	KKlaasen	KKlaasen
Korechoff, Robert	385	169-314	4-0083		
<u>Kosmann, William</u>	<u>315</u>	<u>264-443</u>	<u>4-3714</u>		WKosmann
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
<u>Lattu, Kristan</u>	<u>374</u>	<u>179-206</u>	<u>4-2499</u>	<u>KLattu</u>	
Layman, William	352	157-205	4-3023		
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi
Maag, Carl	354	157-504	4-6453		
Mahoney, Bill	328	169-327	4-6606		

	Sec	Mail Stop	Phone	NASAmail	TELEmail
Mahoney, M.J.	383	168-327	4-5584		
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
<u>Marzwell, Neville</u>	<u>347</u>	<u>198-330</u>	<u>4-6543</u>		
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA	95204		MHumfreville
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Olson, Gary	120	Reston	8-457-7201		
O'Toole, Rich	311	301-285	4-1078	ROToole	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Randolph, Frank	-	301-466	4-4454		
Rayman, Marc	331	161-135	4-2544		
Rhim, Won-Kyu	355	183-401	4-2925	WRhim	
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Edward J.	328	169-506	4-4110	ESmith	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHsmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Voss, Jeff	382	11-116	4-4688		
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Webb, Allan	311	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 90) / Printed 31 January 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.3-105

8 August 1988

To: Distribution

From: Randy Cassingham

Subject: SS Utilization Team Meeting Minutes for 8 August 1988

Present: Paul Henry, Randy Cassingham, Kent Volkmer, Marc Lane, Robert Mostert, Leigh Rosenberg, Tony Ibbott, Steve Pravdo, Clayton LaBaw, Edward Wong, Holly Ziebarth, Kristan Lattu

Next Meeting: 15 August in 301-271 at 10:30

Paul Henry

Case studies people should be especially careful to watch their budgets -- at least one task has had an unexpected surprise.

Lori Paul will be sending an updated questionnaire to gather information for her assignment to track task deliverables. All team members are asked to respond to the questionnaire as soon as possible to clear up Lori's data base.

Tony Ibbott

Has started the LDR scenario paper. Will probably have a review draft ready by the end of the month. There is still a debate going on over erectable vs. deployable schemes; they are concentrating on the erectable side for purposes of the LDR case study.

Steve Pravdo

Working on responding to the Attached Payload AO which was recently released.

Still working on Part Two of the CIT report; hopes to have a review draft done by the end of the month.

Marc Lane

Talked to Brian Pritchard of LaRC. Pritchard wants a 2-5 minute CAD-generated animation sequence showing Andrey's work (burns, Station node regression, orbital stuff) rather than assembly work.

Holly Ziebarth

Has received the Mobile Servicing Center data (descriptions of the "arm") from Canada to update the CAD model. The interim model Holly was using was based on an artist's conception of the center.

Clayton LaBaw

Gave Bob Mostert comments on his methodology information, and is working on a graphics program to display the data.

Continuing his work on SKP contamination issues.

Ed Wong

Talked to the folks at Honeywell in Phoenix regarding attached payload vibration isolation. In general, active isolators are preferred over passive because of their advantages, but it may be possible to use cheaper passive units to meet requirements (down to 0.02 Hz).

Is updating the PPS dynamic model -- the old model is over a year old -- with some very current data.

Randy Cassingham

At the last meeting, Rob Staehle expressed concern over some proposals made at Code E's Science Utilization Management Team meeting (July 27 at JSC). One proposal was aimed at a Code E science payload verification procedure, another at creating a documentation structure that would be outside of the Code S documentation structure formulated by Remer Prince's "Space Station Ad Hoc Documentation Working Group". These concerns have now been brought to Remer's attention; Remer understood the concern and will look into it, but expressed that Code S has no authority to direct Code E. Therefore, there may indeed be differing documentation structures for users to contend with. Randy is unsure of the scope of Code E's proposals, so Paul Henry expressed hope that there won't be too much conflict between the two sets of documents, although it's understandable that sponsors may require reporting above and beyond what the SSP requires in the areas of scientific interest, e.g. experiment objectives, design and results.

Upcoming Meetings

- + August 17. Payload Manifest Working Group: at PR&A Reston; Paul Henry to attend.
- + August 29-31. Albuquerque; Space '88 conference; Kent Volkmer and Jeff H. Smith to present their FTS paper.
- + September TBD. Evolution Working Group: Kent Volkmer to attend.
- + September TBD. FY'89 Code ST POP Submittal Review: Paul Henry, Jeff H. Smith likely presenters; Kent Volkmer to attend.

Space Station Utilization Weekly Meeting Minutes

<u>Distribution List</u>	Mail Stop	Phone	NASAmail	TELEMAIL
Beer, Reinhard	183-301	4-4748	*	
Carpenter, Liz	JPL Reston	8-457-7216	EDUTZI	
Cassingham, Randy	301-285	4-1273	RCASSINGHAM	
Chen, Chien-C	161-135	4-3855	*	
Devirian, Mike	JPL Reston	8-457-7209	MDEVIRIAN	
Easter, Bob	JPL Reston	8-476-7211	REASTER	
Elachi, Charles	180-703	4-5673	CELACHI	CELACHI
Estus, Jay	301-285	4-1245	JESTUS	JESTUS
Freilich, Mike	300-323	3-7801	*	
Gabriel, Steve	301-460			
Garrett, Hank	301-456	4-2644	*	
Glavich, Tom	185-103	4-3952	*	
Graf, Jim	233-306	4-4765	JGRAF	JGRAF
Gray, Bill	301-285	4-1090	BILLGRAY	
Grumm, Richard	183-401	4-9267	RGRUMM	
Hartsough, Chris	301-350	4-1498	CHARTSOUGH	
Heneghan, Cate	301-285	4-1272	*	CHENEGHAN
Henry, Paul	301-285	4-1257	PHENRY	
Hixon, Dave	JPL Reston	8-457-7220	DHIXON	
Hooke, Adrian	233-208	4-3063	AHOOKE	
Hoshizaki, Tak	183-501	4-6962	*	
Ibbott, Tony	168-327	4-4107	AIBBOTT	AIBBOTT
Im, Eastwood	300-235	4-0492	*	
Ivie, Chuck	506-310	4-6045	CIVIE	
Kosmann, William	264-443	4-3714	*	
Kuberry, Dick	301-460	4-8827	*	
LaBaw, Clayton	11-116	4-6248	*	
Laeser, Dick	JPL, Reston	8-457-7200	RLAESER	
Lane, Marc	158-224	4-3342	*	MLANE
Laskin, Bob	198-326	4-5086	RALASKIN	
Lattu, Kristan	179-206	4-2499	KLATTU	
Lesh, Jim	161-135	4-2766	JLESH	
Li, Fuk	300-235	4-2849	*	FLI
Lin, Richard	198-326			
Maag, Carl	157-504	4-6453	*	
Mahoney, Bill	169-327	4-6606	*	
Mahoney, Mike	168-327	4-5584	*	
Mangano, Mike	158-224	4-7699	*	MMANGANO
Martin, Benn	264-325	3-5926	BENN	NSCAT
Marzwell, Neville	198-330	4-6543	*	
Maund, Don	2158 LaJolla Dr, Stockton,	CA 95204	*	
Mostert, Robert	301-285	4-1267	*	
Muirhead, Brian	158-224	4-8179	BMUIRHEAD	
O'Toole, Rich	301-285	4-1078	ROTOOLE	
Pappano, Al	180-402	4-5007	APAPPANO	APAPPANO
Paul, Lori	301-285	4-1166	LPAUL	
Pomphrey, Rick	233-208	4-3890	RPOMPHREY	
Pravdo, Steve	168-222	4-3131	SPRAVDO	

* not listed under NASAmail in April 1988 NASAmail Directory

Randolph, Frank	301-466	4-4454	*
Robey, Judith	HQ/Code SU	8-453-1187	JROBEY
Rosenberg, Leigh	301-285	4-1251	LROSENBERG
Sergeyevsky, Andrey	301-165	4-7622	*
Smith, Jeff L.	301-285	4-1064	JLSMITH
Smith, Jeff H.	301-285	4-1236	JHSMITH
Staehle, Rob	301-285	4-1176	RSTAEHLE
Volkmer, Kent	301-285	4-1240	VOLKMER
Von Gronefeld, Peter	JPL Reston	8-457-7649	PVONGRONEFELD
Voss, Jeff	11-116	4-4688	*
Vuolo, Bob	JPL Reston	8-457-7587	RVUOLO
Walker, Gary	301-445	7-7116	*
Webb, Allan	JPL Reston	8-457-7589	AWEBB
White, Robert H.	264-648	4-6786	RHWHITE
Wiener, Paul	301-230	4-5748	*
Wright, Frank	183-335	4-5690	*
Ziebarth, Holly	171-300	4-6392	*

8/03/88 th (total 65)

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311.5-023

6 February 1989

TO: Distribution
FROM: Randy Cassingham
SUBJECT: SS Utilization Team Minutes for 6 February 1989

Next Meeting: February 13, 1988 at 10:30 in 301-271

Present: Rob Staehle, Randy Cassingham, John Bosley, Kent Volkmer, George Goranson, Kent Volkmer, Lori Paul, Hershal Fitzhugh, Govind Desphande, Ed Wong, Jerry Olivieri, Bill Gulizia

Corrections and amplifications to earlier minutes:

- In minutes of 1/23, it was noted that Mike Devirian had endorsed a position for a JPLer for the Information Systems Services/User Support Environment Working Group (ISS/USEWG). Mike advises that this is confused with his reference to someone who is already working on another group, the UISWG. Mike has not endorsed a position in the ISS/USEWG, and there may already be a person on that group anyway.
- In the deliverable list attached to the minutes of 1/30, the "Accommodation of OSSA Payloads" deliverable was mis-identified. The correct entry for this deliverable is:

2. Title: Pointing System Accommodation Strategy and Options (White Paper)
Task Manager: Ed Wong
Due: 02-28-89

Rob Staehle

The Eos platform instrument selection will be announced today. Following selection, an all-hands Eos meeting will be held March 20-24 at GSFC; contact the OSSA discipline office for details. Manned base instrument selections will be announced in May.

OSSI (rather than the FPO) will now be responsible for all JPL instrument development efforts unless JPL is not building the instrument **and** does not supply the PI. Eos instruments likely to follow this route. Casini and instruments already in progress may or may not be affected by this change.

Paul Henry will now be the primary Evolution Working Group (EWG) representative, replacing Kent Volkmer who has become too busy supporting Galileo and CRAF/Casini launch approval studies. Kent will be the alternate rep. Just back from an EWG meeting at LaRC, Paul reports that there will be a lot of work to do by the end of March. (Paul was in a class and unable to report on the EWG today.)

AI Holt/SSU is interested in knowing the data rate requirements to support teleoperations and AI-based activities (as opposed to learning whether payloads can reduce their requirements to be accommodated by currently baselined capabilities). Money is available to do the work to determine actual requirements.

Phil Cressy/EM is seeking assistance in payload data/information system requirements. (A meeting was held Monday afternoon with Staehle, Handley, Henry, Desphande, White, Fitzhugh and Ivie regarding how to respond. Ivie and Staehle will discuss the work with Cressy.) Funding is in-house from EM to perform this kind of work for EM.

A draft letter to center directors from Code E asks for help in four areas: definition of payload requirements for the post-assembly/completed station (assembly of large structures and staging were specifically addressed); definition of on-orbit approaches to payload data handling; continuing Science Utilization Management (SUM) support; and support for "other" OSSA Space Station Information System (SSIS) matters. People should think about what they would like to do to address these areas. Anyone interested should present a one-page synopsis to Rob by Feb 17 for plan submittal.

Any tasks charging to 726- or 376- accounts: please advise Rob and the PR&A task manager immediately if any foreign travel is contemplated for this year.

A portion of the PRR RID/Study Close-out Plan is attached [attachment 1] -- it shows some possible impact to JPL tasks.

John Bosley

Last week attended the very-good three-day JPL-sponsored robotic symposium in Pasadena. The presentations were unusually detailed in technical information rather than a management overview. Unfortunately, sessions on closely related topics were often held concurrently. John has copies of some of the abstracts; proceedings should be forthcoming.

JPL work for ST on defining robotic task primitives for Orbital Maneuvering Vehicle (OMV)-based operations appears to be only loosely coupled with work at KSC aimed at Code Z missions. It is not clear if this is a problem. JPL is providing information to the KSC team.

As a postscript, the McDonnell Douglass Astronautics Company (MDAC) changed names on January 1st to McDonnell Douglass Space Systems Company (MDSSC, which some employees are pronouncing "mud-suck")...

George Goranson

George, Hank Garrett and Jerry Murphy will attend a review Feb 15 and/or 16 with Al Holt on the electromagnetic interference/electromagnetic compatibility (EMI/EMC) task.

(Steve Gabriel, Rob Staehle and Liz Carpenter met Feb 2 to discuss further work in the orbital debris area. The need was highlighted for accurate debris and micrometeoroid data in the 1 mm to 1 cm size range. Serious concerns were expressed regarding the Program's present approach to debris hazards, but the overall problem appears to be getting new high-level attention.)

Jerry Olivier

Has made a start in getting hooked up to TMIS. Currently, JPL is considered a "secondary user" of TMIS, which means that Boeing will not be supplying any TMIS hardware to JPL, limiting the capability of the operator to certain functions (e.g., file transfer, access to some databases, no CAD drawing functions). There is currently a disagreement as to whether JPL should be granted "primary user" status, or provided hardware even as a secondary user.

Two Issue Management whitepapers have been delivered to PR&A for review, and are so-far quite well received. Rob asked Jerry to give a short presentation to several people on issue management.

Lori Paul

Half of the deliverable questionnaires have been returned to aid in tracking. Anyone with **upcoming deliverables that has not filled in the information form is asked to do so as soon as possible** (a copy of the form was included with last week's minutes, or call Lori for a copy). A review next month with Devirian will likely result in a number of new deliverables.

Bill Gulizia

A new TMIS user survey will be mailed out today. Please fill it out as completely as possible as soon as possible. **Results may help show the need for primary user status** (see Jerry Olivier, above), which may benefit the users. If you have any need for TMIS and do not get a copy of the survey, contact Bill for a copy.

Hershel Fitzhugh

Attended two meetings last week for the Science Utilization Management Team (SUMT) and the Mission Management Director's Review (MMDR) (the meetings are usually held the same week at the same location -- he has a schedule of upcoming meetings for the rest of the year). MSFC recently presented SUMT recommendations to Fisk, who liked most of them, including recommended center assignments for payload handling (see attachment 2).

All physical integration will be at KSC. Analytical integration will be per the attached viewgraphs, though Fisk has not yet selected the Center for attached payloads. MSFC worked up a schedule for the fleet baseline manifesting which involves module staging, floor staging, single rack staging, double rack staging and computer staging. The schedule is extremely tight, and still needs some work.

Mentioned that the Shuttle crews have been named for the next few years. Fitz has a list if anyone is interested.

Fitz handed out draft copies of an OSSA instrument classification document (will supply copies to anyone interested in reviewing it). Specifies the NASA equivalent to Class A/B/C payloads.

KSC will be putting instrument labs in their O&C high bay building. Fitz will be attending the design review of the plans. An immediate concern: there are apparently no electrostatic discharge requirements specified yet. JPL is establishing an office in the O&C building to help our payload people, beginning with upcoming Spacelab flights and continuing with the station.

Ed Wong

Doing some special pointing studies for Code EM: what existing pointers might be suitable for space station payloads? Will then see if specific payloads on an EM-supplied list might be accommodated by them. Is not currently planning to study any self-pointing payloads (e.g., Op-Comm or TES), but may be able to recommend that some payloads might be better served by internal pointers rather than an external system.

Upcoming Meetings

Feb 15 and/or 16: Program report to Al Holt on EMI/EMC for SSU in Reston. George Goranson, Hank Garrett and Jerry Murphy to attend.

Feb 22 (tentative): Utilization Requirements Refinement task review in Reston. Jerry Olivier to attend.

Feb 22: RADOME (Requirements Assessment of Distributed Operations -- Modeling and Evaluation) task review in Reston. Govind Desphande to attend.

Mar 1-2: Robotics Working Group meeting at JSC. Kent Volkmer to attend.

Mar tbd: Loads and Dynamics Working Group meeting at JSC. Ed Wong to attend.

Recent Space Station-related Items from Code L's "Daily News In Brief"...

UPI, Feb. 1

"The Soviet Union will use its recently launched Buran space shuttle to retrieve the mothballed Salyut 7 space station and return it to Earth for possible repair and relaunch, Radio Moscow said Wednesday."

UPI reports the Salyut 7, launched in April 1982, was shut down three years ago when the new generation Mir space station was launched.

"The experts of the Soviet space program intend to bring back to Earth the orbiting Salyut 7 space station with the help of the reusable space shuttle Buran," Radio Moscow said. It did not say when the retrieval mission might take place.

HUNTSVILLE NEWS, FEB. 3

"NASA URGED TO GAIN BUSH OK OF SPACE STATION" By: Jim Denery

"Rep. Bill Nelson, urged NASA Thursday to obtain President Bush's final approval of the space station, which would free the \$515 million placed in holding by the space agency's 1989 appropriation bill."

The paper reports Nelson, chairman of the House Subcommittee on Space Science and Applications, made the suggestion during the subcommittee's first hearing on NASA's proposed budget for the 1990 fiscal year.

The story reports Nelson, who said Bush is "committed in concrete" to the space station, asked whether early approval would lead to a more efficient buildup of the program. James Odom, head of the space station program, said "significant efficiency" would be gained by early approval. NASA administrator James Fletcher said he expects Bush to mention the space station during his Feb. 9 speech to Congress.

"Space Station Freedom is clearly the next step in the involvement of human presence, human intelligence and, most importantly, the human spirit, in the exploration and utilization of space," Fletcher told the committee. "Without the Space Station, this nation would need to re-examine fundamentally its goals and objectives for the civil space program."

→ part 1 - the 1st
to SSUT

PRR RID/STUDY CLOSE-OUT PLAN

See last 3 pages for status of RIDs
of possible impact to JPL.

JANUARY 12, 1989

ALAN C. HOLT

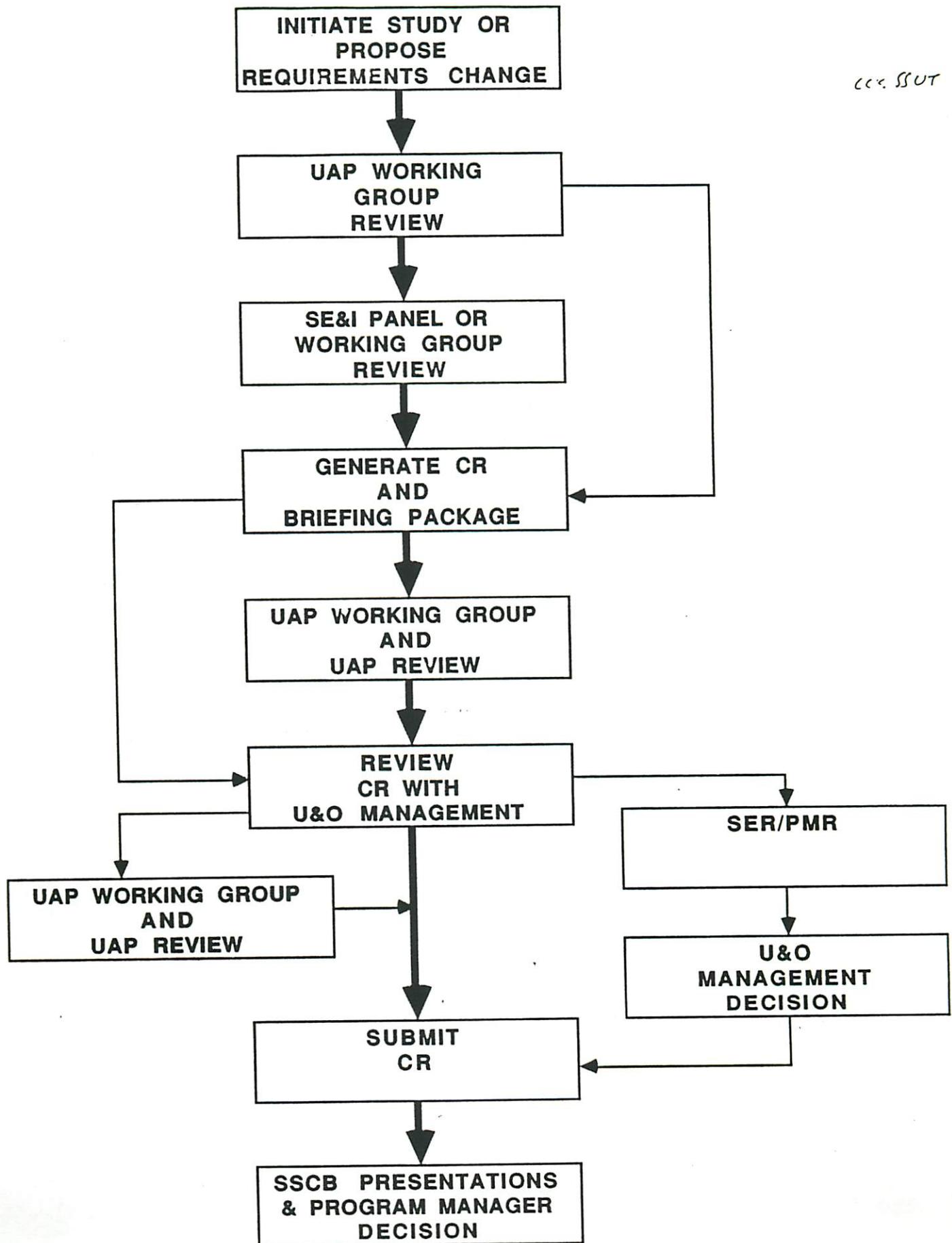
UTILIZATION AND OPERATIONS GROUP

PDRD SECTION 5.0 - USER INTEGRATION AND OPERATIONS REQUIREMENTS

CHANGE REQUEST REVIEW PROCESS

- INITIATE STUDY OR PROPOSE REQUIREMENTS CHANGE.
- REVIEW STUDY RESULTS WITH APPLICABLE UAP WORKING GROUP.
- FOR FLIGHT HARDWARE IMPACTS, REVIEW CHANGE WITH APPROPRIATE SE&I WORKING GROUP.
- PREPARE CHANGE REQUEST AND ASSOCIATED BRIEFING PACKAGE
 - REVIEW PACKAGE WITH UTILIZATION MANAGEMENT
 - REVIEW PACKAGE WITH APPLICABLE WORKING GROUP
- PRESENT FINAL CR PACKAGE TO THE UTILIZATION AND OPERATIONS INTEGRATION REVIEW (UOIR) MEETING OR UTILIZATION AND OPERATIONS MANAGEMENT FOR APPROVAL.
- SUBMIT SIGNED CR INTO SPACE STATION FREEDOM CONTROL BOARD PROCESS.
- PRESENT RESULTS OF PROGRAM WIDE REVIEW AND AGREED TO MODIFICATIONS.

CHANGE REQUEST REVIEW PROCESS



PRR RID/STUDY CLOSEOUT PLAN

CR	ON-GOING STUDY/EXTENDED ACTION	UAP REVIEW	SSCB STATUS/ACTION
1.	CR# ATTACHED PL ACCOMMODATIONS RIDS: 4619, 1528, 3425, 2166, 3382, 3803, 4588, 5932, 7020, 3425, 1528, 6189 STUDY: 5-05	1/12/89 (D. CARTER)	
2.	CR# MICROGRAVITY RIDS: 4216, 7348, 3054, 2553, 6061, 6149, 6159, 7024, 3440, 4219, 4799, 4957, 4994, 5974 STUDY: 5-01	1/12/89 (J. SULIVAN)	
3.	CR# LIFE SCIENCE P/L ACCOMMODATIONS RIDS: 5986, 7172, 7181, 7313, 2425 2554, 3101, 3804, 3846, 4926, 4927, 5983, 6008, 6013, 6020, 6024, 6026, 6034, 6037, 6041, 6042, 6103, 6104, 6140, 6142, 6144, 6148, 6154, 6165, 6171, 7164, 7172, 7181 STUDY: 5-02	1/12/89 (R. WILLIAMS)	
4.	CR# USER POWER RIDS: 1529, 3348, 4441, 4714, 4974, 5765, 5774 STUDY: 5-03	1/12/89 (M. BURROUGHS)	
5.	USER RACK UTILITIES RIDS: 5811, 5826, 4951, 5636, 5741, 5645, 2174, 2399, 3247, 2763, 3054, 5650, 3810, 937, 4942, 4951, 4982, 5660, 7148, 7153, 7193, 7226, 7318 STUDY: 5-06	CONVERSION (PEPWG:) BILL RAMAGE	
6.	CR# P/L TRANSFER RATES RIDS: 4952, 5617, 5852, 5981, 6013 6154 STUDY: 5-06, 5-08, 5-02	1/12/89 (A. JOHNSON)	
7.	CR# U&O BUFFER & STORAGE REQ. RIDS: 2015, 7326, 6044, 2201, 5843, 6614	1/12/89 (A. JOHNSON)	EXTENDED ACTION
8.	60 HZ POWER RIDS: EXTENDED ACTION	1/20/89 (P. ESPY)	
9.	STUDY 5-07 - P/L ACCOMMODATION IN NODE/ HAB RIDS: 6072, 6311, 7155, 7154	CONVERSION (WP2: TASK____) CLOSURE DATE:	D. WILLIAMS

PRR RID/STUDY CLOSEOUT PLAN

CR	ON-GOING STUDY/EXTENDED ACTION	UAP REVIEW	SSCB STATUS/ACTION
10.	STUDY 5-10 - USER INTEGRATION VOLUME STORAGE REQ RIDS: 2426, 5876	CONVERSION (WP1: TASK____) CLOSURE DATE:	D. WILLIAMS
11.	STUDY 5-11 - POIC SUPPORT TO OMGA RIDS: 4925	CONVERSION (OMSWG:WP1: TASK____) CLOSURE DATE:	A. JOHNSON
12.	STUDY 5-12 - CREW TIME USER ALLOCATION RIDS: 3805, 5666, 7032	CONVERSION (WP1: TASK____) CLOSURE DATE:	D. WILLIAMS
13.	STUDY 5-13 - ATTACHED PRESS. P/L INTERFACE REQMTS RIDS: 6556	CONVERSION (EWG:LARC: TASK____) CLOSURE DATE:	AL HOLT
14.	STUDY 5-14 - INTERNAL CONTAMINATION REQ RIDS: 6329	CONVERSION (WP1: TASK____) CLOSURE DATE:	D. WILLIAMS
15.	STUDY 5-15 - INTERNAL ATTITUDE MEASUREMENT INTERVAL RIDS: 2659, 3430, 4385, 4789, 5837, 5976, 6012, 6080, 6086	CONVERSION (WP2: TASK____) CLOSURE DATE:	D. CARTER
16.	STUDY 5-16 - FORMATTING OF REQUIREMENTS RIDS: 4821, 4929	CONVERSION (LEVEL II) CLOSURE DATE: CLOSED	CLOSED PER ESTABLISH- MENT OF POLICY TO RE- VIEW REQ FORMATTING AS PART OF EACH UPDATE TO SECTION 5.0
17.	STUDY 5-17 - PHASING OF POIC & ROC/DOC RIDS: 7018	CONVERSION (LEVEL II) CLOSURE DATE:	BOB DORIAN
18.	STUDY 5-18 - PAYLOAD SERVICING RIDS: 1537, 4902, 5862, 4786, 5900 3997, 2710, 1518, 5918, 6201	CONVERSION (SPACE OPS/ WP3: TASK ____) CLOSURE DATE:	CAROLYN KIMBALL
19.	STUDY 5-51 - US POP USER POWER ALLOCATION & DISTRIBUTION RIDS: 4359, 4361, 4377, 5846, 5343, 2771 3359, 3361, 4378, 5643	CONVERSION (WP3: TASK ____) CLOSURE DATE:	CAROLYN KIMBALL
20.	STUDY 5-52 - EARTH OBS PAYLOAD ACCOMMODATIONS RIDS: 4594, 5634	CONVERSION (SSC/WP2: TASK ____) CLOSURE DATE:	LIBBY WELLS

PRR RID/STUDY CLOSEOUT PLAN

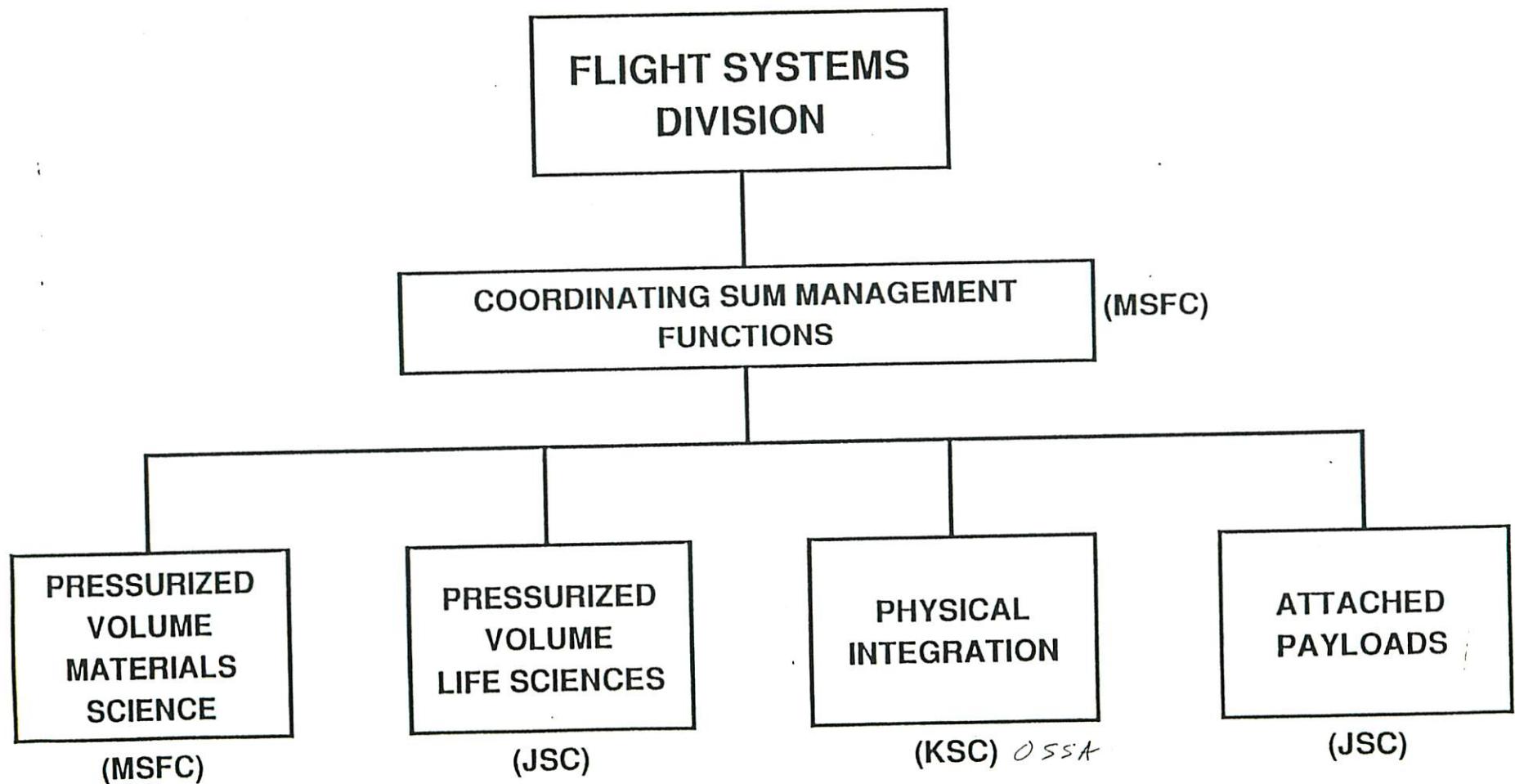
CR	ON-GOING STUDY/EXTENDED ACTION	UAP REVIEW	SSCB STATUS/ACTION
21.	STUDY 8-01 - USER VERIF. REQUIREMENTS RIDS:	CONVERSION (LEVEL II) CLOSURE DATE:	BOB DORIAN
22.	STUDY 5-52 - EARTH OBS PAYLOAD ACCOMMODATIONS RIDS: 4594, 5634	CONVERSION (SSC/WP2: TASK ____) CLOSURE DATE:	DAVE CARTER
23.	CR TO PRD - CPS ACCURACY RIDS: 2681, 4795, 5833, 6111, 438, 2159, 5976, 6012, 6068	CR TO PRD CLOSURE DATE:	DAVE CARTER
24.	POP MASS RIDS: 5947, 4379, 4707, 5858	(WP3: TASK ____) CLOSURE DATE: CLOSED	CLOSED - SECTION 3 & 5 REQUIREMENTS FOR POP MASS HAVE BEEN CHANGED TO REFLECT HIGHER MASS OPTION (7700 LBS) ↗

b6a5 corrected

Some individual RFDs may be closed out at this time, but
unless a close out study, all associated RFDs

RECOMMENDED CENTER ASSIGNMENTS

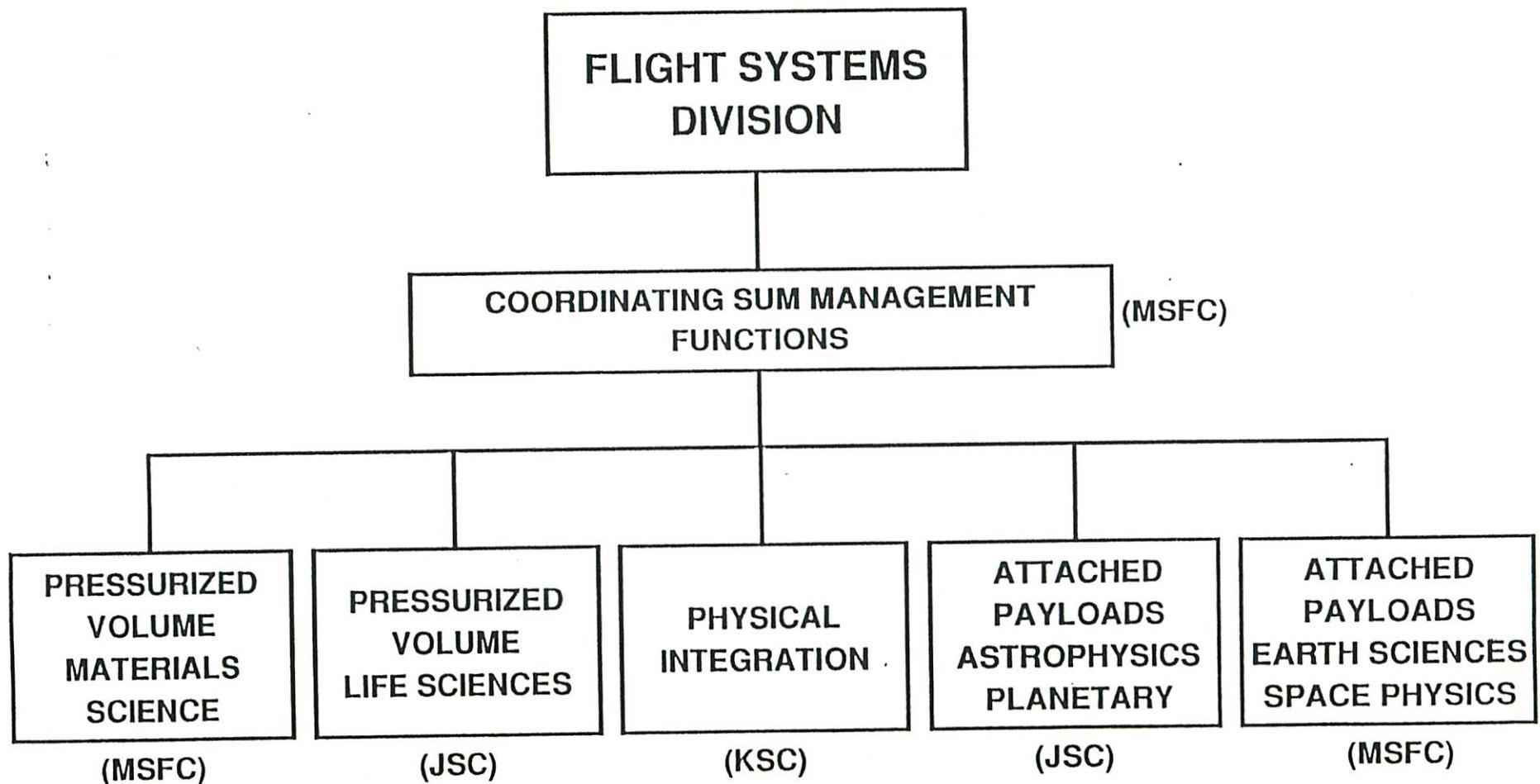
(A)



Attachment 2

RECOMMENDED CENTER ASSIGNMENTS

(B)



Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Beer, Reinhard	322	183-301	4-4748		
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
Borden, Chet	311	301-285	4-1238		CBorden
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
Cassingham, Randy	311	301-285	4-1273	RCassingham	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Crary, Laura	311	301-285	4-1284	LCrary	
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Diner, David	324	169-237	4-6319		
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	347	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1066		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Hoshizaki, Tak	326	183-501	4-6962		
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kosmann, William	315	264-443	4-3714		WKosmann
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi
Maag, Carl	354	157-504	4-6453		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584		
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Marzwell, Neville	347	198-330	4-6543		

	Sec	Mail Stop	Phone	NASAmail	TELEmail
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla	Dr, Stockton, CA 95204		MHumfreville
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186		
O'Toole, Rich	311	301-285	4-1078	ROToole	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Randolph, Frank	-	301-466	4-4454		
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHsmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Webb, Allan	311	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 83) / Printed 7 February 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-036

13 February 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 13 February 1989

Next Meeting: February 20, 1989 at 10:30 in 301-271

Present: Rob Staehle, Randy Cassingham, Bill Gulizia, George Goranson, Tom Handley, Paul Henry, Govind Desphande

Rob Staehle

The Eos instrument selections were announced last week. JPL did well; selected payloads include Reinhard Beer's "Tropospheric Emission Spectrometer", David J. Diner's "Geophysical and Climatological Research Using a Multi-Angle Imaging SpectroRadiometer", Michael H. Freilich's "Advanced Scatterometer for Studies in Meteorology and Oceanography," Anne B. Kahle's "Thermal Infrared Ground Emission Spectrometer", Daniel J. McCleese's "Stratospheric Wind Infrared Limb Sounder", William G. Melbourne's "GPS Geoscience Instrument for Eos and Space Station", Joe W. Waters' "Microwave Limb Sounder" and Richard C. Willson's "An Active Cavity Radiometer Irradiance Monitor Experiment". Also, an interdisciplinary investigation, W. Timothy Liu's "The Role of Air-Sea Exchanges and Ocean Circulation in Climate Variability", was selected. JPLers were also included as co-investigators on several other instruments.

Facility instruments selected include Atmospheric Infrared Sounder (AIRS, Moustafa T. Chahine, Team Leader), High Resolution Imaging Spectrometer (HIRIS, Alexander Goetz, University of Colorado, Team Leader) and Synthetic Aperture Radar (SAR, Charles Elachi, Team Leader).

There will be a meeting tomorrow (Feb 14) in Reston of the POP Servicing Steering Group.

All 376-xxxx accounts should now be open.

POP 89-1 has been sent to task managers. One-liners with task title, dollar amount and cognizant individual are due to Rob by Friday.

Kudos for the people involved in producing the LDR report. Mark Sistilli/EM said he enjoyed it and found it informative. Others have expressed similar compliments.

Rob will be out of town March 6-21.

Bill Gulizia

Nine filled-out TMIS surveys have been returned. Bill advises the quicker the forms are returned, the sooner that he can analyze and justify JPL's TMIS needs.

Jerry Olivier is now hooked up to TMIS and has been able to access at least one database. Bill is putting in a request for more hardware to enable faster file transfers.

Tom Handley

The High-Rate Data report has been delivered to PR&A and is awaiting review.

Chuck Ivie and Phil Cressy discussed payload information systems-oriented work desired by Phil. Chuck will be back in town to report by the end of the week, and Tom will prepare SRMs.

George Goranson

Meeting to review EMI/EMC with Al Holt on Thursday is on. Hank Garrett and Jerry Murphy will also attend, and will explain their current progress and efforts and pitch for an expanded scope to cover all environments, not just electromagnetic.

Paul Henry

Attended the Evolution Working Group (EWG) meeting 10 days ago. The meeting was basically an integration of the R&D, Transportation and Operations splinter groups. The EWG is serious about presenting evolution reference configurations by May, which means a lot of work has to be done by the end of March. This work is important to the baseline ("Phase I") configuration so "hooks" and "scars" can be put into the station design to facilitate evolution. Development of the "Phase II" configuration is striving for "new start" status in 1992. One problem that has been discussed: adding modules. The "double deck" approach (putting modules 'under' the four current modules) has been dismissed in favor of a "raft" (side-by-side) design. Paul mentioned also that there are no Partner representatives in the EWG. The MOUs with the internationals spoke only of the fact that the station will evolve over time.

The new Program Director (Tanner) is reviewing the structure of all working panels Program-wide.

While at the EWG meeting, Paul received good feedback on both the Large Deployable Reflector and the Solar System Exploration reports.

Paul was able to talk to Berry Meredith after the meeting for about 20 minutes, discussing the use of station-keeping platforms (SKP). Berry was aware of the concept, and seemed quite interested in learning the results of our studies. Paul feels that employing a SKP-like scheme may enable the Phase II station to serve as both a research base and a transportation node with fewer conflicts than thought earlier. Many attached and even microgravity payloads might be offloaded to platforms, returning to the station periodically.

A meeting last Friday with Bill Cirillo/LaRC last Friday helped pin down priorities on the staging task. Andre Sergeyevsky is working on problems regarding Mars "free-return" trajectories. He is well into his trajectory work, but the deadlines (end of March) will be very tight.

The request memo from Pritchard for the video of station departure trajectories has been received. Rob is formulating a response. Work is to be performed by Marion Inova and Andrey Sergeyevsky or an assistant in 312, with Paul's cognizance.

Randy Cassingham

Please check your entry on the distribution list. If there are any changes to be made (including adding a Telemail or NASAmail address if it is blank), please contact Randy.

Anyone who needs a complete list of the Eos platform payloads (including the names of the investigators and co-investigators) can get a copy from Randy.

Upcoming Meetings

Feb 16: Program report to Al Holt on EMI/EMC for SSU in Reston. George Goranson, Hank Garrett and Jerry Murphy to attend.

Feb 22 (tentative): Utilization Requirements Refinement task review in Reston. Jerry Olivieri to attend.

Feb 22: RADOME (Requirements Assessment of Distributed Operations -- Modeling and Evaluation) task review in Reston. Govind Desphande, Jeff L. Smith, Chris Hartsough and Kristan Lattu to attend.

Mar 1-2: Robotics Working Group meeting at JSC. Kent Volkmer to attend for Wayne Schober.

Mar tbd: Loads and Dynamics Working Group meeting at JSC. Ed Wong to attend.

Recent Space Station-related items from Code L's "Daily News in Brief"...

AEROSPACE DAILY, FEB. 7

"TEN COSMONAUTS READYING FOR FUTURE FLIGHTS IN MIR, SOVIET SAYS"

"Ten Soviet cosmonauts are preparing for future flights in the Mir space station, Lt. Gen. Vladimir A. Shatalov, chief of cosmonaut training, reported."

The DAILY reports Shatalov also confirmed that seven others are in training to fly the Soviet space shuttle, and blamed recent errors in the Soviet space program on the increasing "breadth and complexity" of the effort.

"As for Buran's next flight," Shatalov said, "I believe that it could be a manned one (after comprehensive training, of course). However, there are, of course, other opinions. As far as I know, the final decision has not yet been made. First we have to conduct a careful investigation of the craft which has returned from space..."

The DAILY reports Shatalov revealed that a crew of three women was to have flown to the Salyut 7 station in 1984, but that the backup crew, all men, made the flight instead. Asked if Soviet women will fly in space this year, Shatalov said, "No. Such a flight is not planned. Women are not currently being trained at our center."

The following is the text of what President Bush said about NASA during his budget address to Congress Feb 9:

"I request funding for NASA and a strong space program: an increase of almost \$2.4 billion over the current fiscal year. We must have a manned space station; a vigorous, safe space shuttle program; and more commercial development in space. The space program should always go 'full throttle up.' That's not just our ambition, it's our destiny."

(NASA Administrator Fletcher issued a two sentence response: "We're pleased the President supports Space Station Freedom and the civil space program. This is no surprise based on his earlier remarks.")

UNITED PRESS INTERNATIONAL, FEB. 9

"A Congressional Budget Office proposal for slashing the budget deficit called Thursday for abandoning the multibillion dollar space station Freedom project in favor of less expensive shuttle and unmanned missions."

UPI reports the CBO said: "Canceling the current space station would save roughly \$16 billion in budget authority and \$13 billion in outlays relative to the Reagan administration's request from 1990-1994."

UPI says the proposal was among many options listed by the non-partisan budget analysis agency for cutting government spending.

"Advocates of canceling the space station program point out that many of the traditional objectives of U.S. space policy will not [be] served by the current program," the CBO said. "No significant purpose of national security will be served, as the Department of Defense has expressed very limited interest in using the NASA station. An alternative to cancellation would be a more modest program using shuttle Spacelab flights, and intermittently tended and unmanned facilities."

Space Station Utilization Team Weekly Meeting Minutes

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Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
Cassingham, Randy	311	301-285	4-1273	RCassingham	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Crary, Laura	311	301-285	4-1284	LCrary	
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Diner, David	324	169-237	4-6319		
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	347	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1066		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
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Henry, Paul	311	301-285	4-1257	PHenry	PHenry
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Pravdo, Steve	381	168-222	4-3131	SPravdo	
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Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

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311.5-047

20 February 1989

TO: Distribution
FROM: Randy Cassingham *RC*
SUBJECT: SS Utilization Team Minutes for 20 February 1989

Next Meeting: 27 February 1989 at 10:30 in 301-271

NOTE: See PR&A task review meeting info below

Present: Rob Staehle, Randy Cassingham, John Bosley, Leigh Rosenberg, Govind Deshpande, Kent Volkmer, Tom Handley, Hershel Fitzhugh, Lori Paul, George Goranson, Ed Wong, Paul Henry

Rob Staehle

Attended the 1989 Aerospace Engineering Conference and Show last week at the LAX Hilton. There were several space station displays there, including good ones by Rocketdyne and McDonnell Douglas. Rob picked up a brochure and Space Station Freedom sticker, compliments of McDonnell Douglas.

An internal review of the pointing task was held Feb 14, led by Ed Wong and Bob Laskin. An updated review is tentatively scheduled for March 3.

A dry run of Phase I of the distributed ops task was held Feb 17 in preparation for a review by Reston on Feb 22. Al Webb presided, with presentations made by Jeff L. Smith, Govind Deshpande, Kristan Lattu, Henry Kleine and Jerry Olivier. An internal paper from Division 36 on categories of distributed operations is late and is delaying completion of Phase I.

A mid-year review of all PR&A-sponsored tasks will be held in Pasadena **March 23-24, not on March 15 as mentioned in the meeting**. Each task manager should prepare a 15-60 minute presentation (about seven viewgraphs) on the status, problems and funding aspects of the task. More information about the review is attached (#1).

Several one-line responses to the POP89-1 call have been received, but Rob was expecting several more. They were due Friday Feb 17. Additional responses are expected from Leigh Rosenberg, Jim Graf or Dick Turner, and Adrian Hooke.

Rob noticed a story in the October 17 issue of *Aviation Week* about the SDI "Zenith Star". This entailed a plan for a single large-vehicle launch, but the plans were changed to two launches on Titan 4s. It would be interesting to check into the assembly issues that they researched before changing their plans. The robotic people should especially take note; see John Bosley for a copy.

There will be a Tethers in Space conference in San Francisco May 17-19. Rob has a brochure if you are interested in attending.

A proposed PRD update was received from Barry Meridith/LaRC for Code ST. It is about two pages of new or modified material reflection evolution requirements. Paul will compile comments by mid-week.

John Bosley

John is organizing a meeting with the astronaut office at JSC next month, both to present some of our utilization work (they have already shown interest in the SSEx and LDR reports) and to discuss issues with them (e.g., training for payload ops, servicing, EVA, safety issues). Anyone who would like any issues brought up in the meeting should contact John.

John is working to determine what, if any, station design changes are needed to accommodate automation and robotics activities. Any issues identified may result in change requests to the baseline configuration; CRs need to be put into the system a year before the preliminary design review, which is currently scheduled for Spring 1990.

Leigh Rosenberg

Ken McGraw attended the Utilization and Operations Information Planning Group (UOIPG) meeting last week for Leigh. Ken reports that the UMRIS (User Mission Requirements Information System) overview document has still not been issued (the group has been working on it for over a year), which concerns Leigh. Ken is also concerned about the role of the UMRIS data base and its possible effect on JPL PIs. The idea is to have UMRIS be the central depository of payload data so that a PI only has to enter information in one place -- anyone that needs payload information can get it from UMRIS so that the PI doesn't have to provide information in differing formats to everyone who needs it. Leigh is not sure that this function will be implemented successfully. Rob noted that this was also a concern of the Science Utilization Management team and suggested that the SUM team have a representative on the UOIPG; Leigh wasn't sure if there was a SUM rep on the group or not. Leigh and Fitz will check on this.

There will be a review on Wednesday of the Utilization Requirements Refinement and Distributed Operations tasks in Reston. Jeff L. Smith, Kristan Lattu, Henry Kleine, Govind Deshpande, Jerry Olivier and Ken McGraw will attend.

Tom Handley

PR&A has finished its review of the High-Rate Data Handling report. Some edits will be made, and Tom expects the report to be finished and signed off by Laeser in about two weeks. Anyone wishing a copy should contact Tom.

Tom is working for Andy Bennett on science requirements regarding the TDRSS zone of exclusion (a 6-12 minute gap over the Indian Ocean where no relay satellite can see the station to relay data). They are trying to determine whether the zone must be closed, or if operations can be accommodated even though there is a gap. Telescience is one major concern since the zone will cause a drop in continuous communications. It is not clear whether a clear answer will emerge by a planned June decision date.

Chuck Ivie has discussed payload information system requirements work with Phil Cressy/EM. Funding from EM is on contract at JPL, and Tom has prepared draft SRMs for the work. Chuck, Rob and Bob White will discuss it Feb 21 or later.

Lori Paul

A quarter of the deliverable questionnaires still have not been returned. The deliverables need to be tracked; please cooperate with Lori in gathering information. Thanks much to the three quarters who *have* responded.

Hershel Fitzhugh

A draft document regarding payload maintainability/serviceability issues is being written for Code EM by BDM Corp. Fitz will be gathering comments for it -- anyone with a concern on these issues should send comments to Fitz ASAP for inclusion in the document. A draft of the draft is attached (#2). **Instrument people are especially encouraged to respond because they may have to live with the design approach established in this document.**

Bob White will be attending a meeting at KSC next month regarding Science and Technology Centers. S&T Centers will be integration points for payloads. KSC and MSFC are slated to have them, and JSC wants one also. JPL wants at least some role in integration so that we can integrate our payloads into racks here at JPL, avoiding serious problems encountered with Spacelab. JPL has expressed no interest in integrating non-JPL payloads.

Fitz will be getting a review document of the plans to put payload rooms in KSC's O&C building high bay area. Please contact him if you would like to see the document. Still a major concern: there are apparently no requirements regarding electrostatic discharge in the plans. JPL is now providing KSC with ESD information.

Ed Wong

Ed is expecting a review meeting in Reston to present pointing system accommodations work, though the date is not yet set.

Pointing system accommodation evaluation work for Code EM using the "scrubbed" list of pointing payloads is nearly complete and will be delivered on Friday to Phil Cressy/EM.

Paul Henry

Meeting Friday with Jerry Millard (Section 354) and the Stationkeeping Platform (SKP) contamination study people. Most of the data has been gathered and ready to be run. Paul is hoping to get detailed results of the contamination effect of a Shuttle visit to the station. It may prove helpful, for instance, for the SKP to remain away from the station while the Shuttle is nearby, then come in for payload exchange or servicing after the Shuttle leaves. However, this requires more storage accommodations for the external payloads. The possible contamination effects from the Shuttle are not insignificant: early results show the possibility of leftover drops of Shuttle propulsion by-products floating around the station and attaching to surfaces. This residue may or may not stay around the station for some period of time.

Krystyna Kiedron of section 312 has been recruited to work on the trajectory issues of SKPs. This is necessary so that the SKP will be able to return to the station at appointed times for servicing or payload changeout. It may be possible to effectively utilize the differing ballistic coefficients of the station and SKPs to lower SKP propellant requirements after separation of the vehicles is achieved.

Paul is working with the System Design Trade-off Model (SDTM) people (through Chet Borden) in section 311. SDTM is a computer model that compares costs of various accommodation options on the station. Paul is interested in running some of the costs/benefits of SKPs through the model.

Trajectory work on the manned Mars mission for Bill Cirillo/LaRC is underway by Andrey Sergyevky. The start has been delayed by Code Z indecision about which Mars mission strategies to consider. Probably only two of the four selected strategies will have JPL work completed by March 15, with the other two to follow shortly thereafter.

Randy Cassingham

An orbital debris study, a joint effort between NASA and DoD, was just completed. Randy has a copy of a press release/report overview if anyone wants a copy. The report has not been issued yet (scheduled for April), but "a limited number of photocopies" are available now. The six-month study was initiated under the National Space Policy, which stated that "all space sectors will seek to minimize the creation of space debris. Design and operations of space tests, experiments and systems will strive to minimize or reduce accumulation of space debris consistent with mission requirements and cost effectiveness."

Upcoming Meetings

Feb 22: Utilization Requirements Refinement and Distributed Operations task review in Reston. Jerry Olivieri and Ken McGraw to attend.

Feb 22: RADOME (Requirements Assessment of Distributed Operations -- Modeling and Evaluation) task review in Reston. Govind Deshpande, Jeff L. Smith, Henry Kleine and Kristan Lattu to attend.

Feb 22-24: Microgravity operations meeting at MSFC. Hershel Fitzhugh and Dick Grumm to attend.

Mar 1-2: Robotics Working Group meeting at JSC. Kent Volkmer to attend for Wayne Schober.

Mar 7-8: S&T Center meeting at KSC. Bob White to attend.

Mar 23-24: Mid-year review of all PR&A tasks in Pasadena (room TBD). All task managers to attend.

Mar tbd: Loads and Dynamics Working Group meeting at JSC. Ed Wong to attend.

Posted: Fri Feb 17, 1989 3:06 PM EST [edited message]
From: HANK.BECK
To: rstaehle
Subj: Another SSSO Review

Rob-

Following is a draft of a memo which will go out next week.

Subject: Mid-year Task Status and Plans Review

We would like to plan a task level review of the current SSFSO tasks and plans for the remainder of FY89. The review is tentatively scheduled to be held in Pasadena on March 15 and 16.

Following is a summary of the information required for each task; one vue-graph or less per subject should be adequate.

- % Task objective
- % History and background
- % Status and accomplishments
- % Issues and problems
- % Task schedule and status
- % Fiscal status and resource requirements
- % External commitments and/or expectations
- % Proposed changes in scope or direction

Details and coordination of the presentations are the responsibility of the PR&A Division Managers and R. Staehle and J. L. Smith in Pasadena. A detailed agenda will be forthcoming.

PAYLOAD DESIGN APPROACH AND OPERABILITY GUIDELINES

PURPOSE:

The purpose of this document is to provide a selected set of design approach guidelines for the 4 classes of OSSA Space Station payloads, as defined in OSSA Instruction TBD. The intent is to promote a consistent approach to design and operability decisions for all OSSA-sponsored Space Station payloads.

SCOPE:

Subsequent to the initial payload classification, this document will provide additional insight into selecting an appropriate implementation mode. Guidance is provided on subjects, such as: autonomous instruments vs crew dependence; servicing vs redundancy; sparing philosophy; and EVA/IVA consideration.

INTRODUCTION

A logic flow treats each of the selected, major design-approach considerations and explores the consequences inherent in the decision process. One of the primary questions to be resolved is the subject of servicability of the payload. For example: Should planned servicing be an element of the overall implementation mode? Does the payload design lend itself to Orbital Replaceable Unit (ORU) concepts? Automated telerobotic procedures and hardware are now being developed to enable on-orbit component exchange of external-attached payloads.

Not every payload must be routinely maintained, however, the implementation must consider the potential for instrument on-orbit failure and the ramifications to the program cost and schedule to provide sparing, accessibility and/or servicability. Payload design must seriously consider the unique environment of the Space Station and the constraints imposed on the utilization of the available services.

SERVICING

There is a crucial interplay between the servicing strategy and the flight system development. The goal of a servicing program for a flight project is to provide an economic and effective means to sustain the mission with high scientific productivity for a minimum of the design life goal. Reasonable steps must be taken to ensure that payload sub-systems are able to sustain failures and survive between planned servicing intervals. It may be acceptable that the payload is able to acquire limited, or no scientific data during the intervals between defined servicing.

The issue is complicated by the fact that there are no means to predict component failures with any meaningful precision. Variables include the design, the parts quality, the test and qualification programs, and the actual Space Station environment as compared to that predicted pre-launch. If the cost of the servicing infrastructure approaches the cost of replicating and launching another flight system, the concept of servicing loses merit. Therefore, the servicing program must be approached with a willingness to accept and manage a much higher level of risk and uncertainty than the initial flight development.

SPARING

All on-orbit replaceable units are to be classified into two groups designated as Orbital Replaceable Units (ORUs), and Contingency Replaceable Units (CRUs). The ORUs are designated as Class-1 and Class-2 as defined below:

ORUs; Class-1: Those units which would almost surely be replaced at the planned servicing missions at TBD months and TBD years. These include the replacement instruments and any components with known life-limits due to degradation and wear-out. Units will not be placed in this class merely as a result of pre-launch failure estimates. The assumption here is that these units will need to be replaced on orbit if the mission is to achieve its TBD year lifetime. These units may contain components with upgraded technology and will be developed and brought to flight-ready condition consistent with the planned flight dates.

ORUs; Class-2: Those units which are critical to the payload's survival and which do not fall into Class-1. Unforeseen events may require that the payload be serviced as quickly as possible to protect the safety of the instrument complement. Limited numbers of these units will be built during the development program as spares, and maintained in a condition post-launch that will allow them to be brought to flight-ready status on a time-scale of TBD (time). A goal of any payload program will be to minimize these units through appropriate flight-system design.

The pre-launch development program will develop the necessary tools, procedures and tests to assure high confidence that ORUs can be serviced on-orbit efficiently and within existing Space Station policies.

CRUs: Those orbital-replaceable, non-ORU, units which can be replaced if they fail in order to continue productive science observations. These units would not be developed as spares during the development program except as required for pre-launch (i.e. non-servicing) purposes. Feasibility of on-orbit replacement will be accomplished, but the detailed tools, procedures, and tests will not be developed during the pre-launch phase. The assumption is that suitable replacement units can be developed on time scales of TBD (time) if they are designated as top-priority activities by the AA/OSSA once their failures are

evident. A further assumption is that total science operations will not be curtailed by such failures if the design approach contains redundancy modes.

The designation of units into these three classes will be considered a Level-1 decision and will be approved by the Program Manager.

FROM P. WYMAN TO R. H. WHITE
REQUEST COMMENTS BY 1600 EST, 2/16/89.

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Chen, Chien-C	331	161-135	4-3855		
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JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-051

27 February 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 27 February 1989

PRESENT: Rob Staehle, Randy Cassingham, Govind Deshpande, George Goranson, Richard Grumm, Kent Volkmer, Hershal Fitzhugh, Lori Paul, Jerry Olivieri, Paul Henry, John Bosley

Next Meeting: 6 March 1989 at 10:30 In 301-271

Rob Staehle

Mike Devirian and Alan Webb expressed positive comments about last week's RADOME (Requirements Assessment of Distributed Operations -- Modeling and Evaluation) and Utilization Requirements Refinement task reviews in Reston.

Steve Pravdo is attending an Attached Payload and Platform Accommodations Working Group meeting starting tomorrow to discuss change requests regarding payload accommodation requirements in the PDRD. Steve is specifically interested in the ATF and CIT instruments.

Barry Meridith/LaRC received the comments from Kent and Paul, which were incorporated into a change request to the PRD.

Chuck Ivie has, per Phil Cressy/EM's direction, started work on payload information system requirements. Tom Handley is running an SRM for this.

Bob Miyake/354 issued a report on five thermal control requirements for pointed payloads. The report documents results reported orally to John-David Bartoe/S, Phil Cressy/EM, Mike Devirian and others last fall.

The mid-year review of all PR&A-sponsored tasks will be held in Pasadena March 23-24, (again, *not* on March 15 as mentioned in last week's meeting). All are asked to attend the introduction/overview session. Each task manager should have draft viewgraphs to Rob's secretary (Rachael Porter) by Monday, March 13 for air express to Rob in Houston; **final viewgraphs should be in Rob's hands by close-of-business on Monday, March 20.** Tangible results should be emphasized in the presentations. Randy Cassingham will provide spending profile charts on request. An outline supplied by Hank Beck/PR&A is included in last week's minutes and in a memo recently sent by Hank to Pasadena task managers.

Robert Rhome/E is requesting that JPL submit a response to support Science Utilization Management (SUM) planning. They ask that we 1) conduct studies to drive out evolutionary payload requirements (e.g., staging of OSSA payloads in post-assembly complete phase and assembly of large structures) and 2) investigate on-orbit approaches to payload data handling. Paul Henry will be providing inputs on the first part; Tom Handley and Chuck Ivie on the second. JPL will also continue to support the SUM team.

POP 89-1 call for Code S and OSSA tasks: **Draft half- to one-page responses are due to Rob by COB on Thursday.** Final Division- and ALD-approved POPs are due in Reston on March 22. Code S responses should be guided by the language in Tanner's letter of 27 January, which

was circulated to JPL task managers. Similar descriptions of proposed OSSA-funded work are also needed.

Bob White is now a member of the Code E Science & Technology Center Working Group.

Today's Director's Review and Discussion in 180-101 @ 1:30 is on EOS instruments.

Govind Deshpande

The presentations made last week in Reston were well received. Bob Easter gave the OK to proceed with simulation model completion to perform resource tradeoffs. This year, the group plans to model the Data Management System, Communications & Tracking, intravehicular activities, power, and possibly microgravity. Next year, they plan to add extravehicular activities, and Shuttle up- and down-mass.

Dick Grumm

Attended the Space Station Payload Operations OSSA Microgravity Operations Meeting at MSFC, the first in a series of meetings to produce an Operations Study draft document by June 1 that will baseline Level II and III operations concepts for each discipline (EN, EB, EE, ES, EL, EZ and EC). Dick outlined two areas of particular concern to JPL space station users:

- The approach used in the study will bias it toward the recommendation that distributed operations all be at MSFC -- not exactly *distributed* operations... A serious shortcoming is that it does not consider combining operating centers for each discipline at the centers. In the case of JPL, they apparently are not going to consider having a single operations center here that consolidates all JPL SS operations. Instead, Dick expects the study will show that Code EN cannot afford a standalone Distributed Ops Center here -- and it would be too expensive -- which is why we have never asked for such standalone capability. All of our requests have been to operate Code EN payloads from JPL in a center that is combined with all other JPL SS operations, such as EOS instruments.
- There appears to be a strong bias in the present MSFC study against telescience or remote interactive operations. They view it as a problem and may solve it by making it appear so expensive that it is unaffordable or otherwise impossible (the discussion here slipped into the issues that are recorded under **Jerry Olivier**, below). To get telescience, the users will need to continue to press for that need, and it may also be necessary to invent and develop the end-to-end capability since MSFC does not seem to be working on it with any enthusiasm.

Dick also noted that the Marshall folks are treating SS planning as a sort of series of incremental Spacelab mission. They don't seem to understand that this system, which typically spends about two years to plan a one-week Spacelab mission, might become pretty unwieldy when it is phased up to the full-time continuous station planning system, where, on average, one week of operation must be planned in a week. With our long-lived spacecraft, this is exactly the kind of thing JPL has been doing continuously since about 1962...

Since all of this is of great concern to JPL users, Hershal Fitzhugh will be looking in to providing a report expressing our requirements on distributed operations. It needs to get to Phil Cressy/EM within six weeks -- the Marshall report is expected to be acted upon and "set in cement" in June.

EN presented to the workshop a 1.5 second (one-way) latency requirement derived by JPL for Microgravity Containerless Processing Facility (MCPF) science operations.

Jerry Olivieri

At the review in Reston last week, Jerry presented the major issues to be resolved regarding distributed operations, which are (in order of priority): latency, command verification, distributed operations payload control, data storage and backlog, resource management, and event-driven rescheduling. Jerry will be starting a trade study on latency, leaving "hooks and scars" in the report so that the other issues can be added later. Latency is greatly affected by such issues as ground architecture and security provisions in assuring that commands originate from an authorized source.

Lori Paul

Lori reported on the current status of deliverables. A list of recent and soon-to-be-due deliveries is attached.

Paul Henry

Work is progressing well toward a major data dump to ST in mid-March from the Advanced Robotics and Space Vehicle Deployment tasks. The trajectory video is on a lower priority, but Paul has started working on storyboarding it. It should be pretty well up-to-speed by April.

Paul is preparing updated viewgraphs regarding SKP studies to be faxed to Peter von Gronefeld/PR&A today. Ray Tanner/SS will be briefed on SKP work this week.

George Fox/311 will begin a SKP cost tradeoff analysis using the 311-developed System Design Tradeoff Model (SDTM) computer program.

John Bosley

Work on Attached Payload Accommodation Strategies task is progressing well. John has completed part of the matrix which will show gaps in the planned accommodations. John has evaluated the SIA/PIA and the OMV against a number of classes of accommodation requirements to see how well they meet the requirements. They will analyze the rest of the baseline accommodations, as well as some new concepts that Paul Henry has thought up, by the end of next week.

John has been getting a new automation & robotics person (Michael Drews/347) up to speed on the On-orbit Vehicles and Processing task. LaRC has expressed concern that our focus is too narrow -- mostly on the OMV -- but the OMV is really the only vehicle for which sufficient technical information exists to support a realistic analysis. John is reviewing plans for a number of other vehicles, such as the Space Transfer Vehicle (formerly the OTV) and conceptual Mars excursion vehicles to try to identify servicing and maintenance tasks that are not required by the OMV, and specifically tasks which involve movement or manipulation of very large masses.

Upcoming Meetings

Feb 28-Mar 1: Attached Payload and Platform Accommodation Working Group executive session in Reston. Steve Pravdo to attend.

Mar 1-2: Robotics Working Group meeting at JSC. Kent Volkmer to attend for Wayne Schober.

Mar 7-8: S&T Center meeting at KSC. Bob White to attend.

Mar 23-24: Mid-year review of all PR&A tasks in Pasadena (room TBD). All task managers to attend; others encouraged to attend.

Mar tbd: Loads and Dynamics Working Group meeting at JSC. Ed Wong to attend.

Space Station Deliverables

Due in February (but not included in previously published list)

Title: POP Servicing Study Report
By: Dick Turner
Due: completed

Title: POP Instrument Cost Estimate
By: Dick Turner
Due: completed

Title: Margin Policy Definition: Case History Memo
By: William Kosmann
Due: completed

Title: Code E Attached Payloads Pointing Performance
By: Ed Wong
Due: 02-24-89

Due in March

Title: SKP Accommodation at Space Station (contamination study)
By: Paul Henry
Due: 03-15-89

Title: Pointing System Options (white paper)
By: Ed Wong
Due: 03-15-89

Title: Attached Payload Accommodation Strategies
By: Paul Henry
Due: 03-31-89

Title: SSP Margin Policy Quantitative Recommendations
By: William Kosmann
Due: 03-31-89

Space Station Utilization Team Weekly Meeting Minutes

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Deshpande, Govind	311	301-285	4-1279	GDeshpande	
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Diner, David	324	169-237	4-6319		
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
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Kleine, Henry	363	510-264	7-9690		
Kosmann, William	315	264-443	4-3714		WKosmann
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi
Maag, Carl	354	157-504	4-6453		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT

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Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHsmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 82) / Printed 28 February 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-082

March 20, 1989

TO: Distribution

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 20 March 1989

PRESENT: Rob Staehle, Randy Cassingham, Lori Paul, Leigh Rosenberg, Paul Henry, Tom Handley, Kent Volkmer, George Goranson, Govind Deshpande, Ken Mann, Dick Turner

Next Meeting: 27 March 1989 at 10:30 in 301-271

Note: The next meeting will feature a video tape, "Science Operations: Lessons Learned", which came back from JSC from the meeting at the astronaut office (see below). Popcorn *will* be provided.

Note: the meetings scheduled for March 6 and March 13 were cancelled due to travel.

Rob Staehle

An agenda for the review this week is in the mail. Call Rob's secretary (Rachael, x4-1085) if you don't have one yet. All task managers are requested to attend the introductory session (Thursday March 23, 8:30-9:00 a.m. in 180-703B). Others may attend if they desire. Task managers should bring 10 copies of their charts to their task review session. Task workers are encouraged to attend the review of their tasks. A special meeting on Orbital Debris will be held on Friday at 8:00 at the request of Jim Doane. Representatives from 31, 32, 35 and 52 are to attend or provide inputs if unable to attend. George Goranson is handling invitations.

Allan Webb/PR&A advises that the Code S to Code T SRD has been put on hold (is no longer valid) due to the reorganization in Reston. It was primarily generated by SSIS, which now being absorbed by other offices. The 3/3 review date is no longer valid so there is no need for us to review and respond to this at this time. The document does provide a lot of useful information, but may change or evolve in the future.

AIAA is holding an International Space Station Technical Symposium in Vienna, Virginia June 20-22. We don't know if a call for papers has gone out -- it may be by invitation only. See Rob if you want a copy of the Symposium notice, or if you think you should be giving a paper.

Leigh Rosenberg

Jerry Olivieri has put together an outline on the latency study plan for the Requirements Refinement/Distributed Operations task for Allan Webb.

Leigh is working on SIRTF Ground Ops Costing Studies, and his support to the UOIPG continues.

Dick Turner

Has completed the POP-ELV Servicing Mission Study report. It will be delivered to Scolese/GSFC, who will then be delivering it to Hixon/PR&A. So far, no EOS-specific requirement for servicing has come forth, and none of the options studied seems to have a significant cost advantage. All in all, it looks like there shouldn't be *any* servicing of the polar platforms; replacement would probably be as effective (both in operations and cost). Platforms will probably be *serviceable*, but not actually serviced.

Govind Deshpande

Went to the Data Management System working group meeting in Houston last week. The Architecture Control Document was completed, but will have to be re-written since some requirements were not known and others could not be traced back to the Program Design and Requirements Document. It also didn't address assembly issues. No timetable has been set for the rewrite. Several issues were brought up as unresolved, such as the possible use of a Work Package 1-touted Global Payload Manager (a software tool), rather than the current Operations Management System concept of the Onboard Management Application (another software tool).

Commonality between the station base and polar platforms continues to be an issue for Data Management System components. Current requirements call for the platforms to use the same hardware as systems on the station base, but since servicing won't be available, this standard may be inappropriate for platform payloads. The platforms' limited power is also a problem.

Tom Handley

Submitted eight change requests to PR&A as a result of his High-Rate Data Study. There is clearly a problem as to whether scientists are designing payloads to be autonomous -- will their payloads be able to operate when the station is in the Tracking and Data Relay Satellite System zone of exclusion? Tom is still waiting on PR&A to approve the general distribution of the study report.

Paul Henry

Attended the meeting last week at JSC with the astronaut office; four astronauts attended (see attached attendance list). Rob Staehle presented some background on our space station work. John Bosley gave a presentation on JPL's robotics work, and Paul Henry discussed the large spacecraft assembly scenarios we have been working on. The astronauts were quite receptive and interested in our work. Anyone who might benefit from astronaut feedback on some issue should contact John Bosley (as liaison) -- the astronauts are spread very thinly in their work, so they may welcome our input in identifying problem areas. Some of them have expressed considerable interest in an informal, "hands-on" visit to see the robotics work here. John Bosley will work out a referral to Giulio Varsi, who expressed interest in hosting a visit to JPL.

After the meeting, the contingent was given a tour through the full-size mockup of the station modules and nodes (though the Columbus and JEM modules were not yet finished), and the Spacelab training facility (which had backup flight hardware mounted in it). It was a striking contrast: the station is *huge* compared to Spacelab, which has no racks in its "floor" or "ceiling".

The Attached Payload Accommodations Strategy task deliverable will be a methodology for assessing accommodations, a first-run pass at the data, and some recommendations based on that first pass. For example, ways to change the mix of payloads might be recommended based on the accommodations' ability to meet the needs of the total mix of the payloads (as opposed to assessing individual payloads). It is likely that a recommendation for a light pointing system and/or a tilt table (to compensate for attitude variations) will emerge from the data. Also, accommodations for Small and Rapid Response payloads looks like a problem area.

The final delivery document on the Stationkeeping Platform (SKP) task is slightly behind schedule. There were problems getting the contamination work done, but the contamination people have apparently finished their work on Galileo and can now put more effort into SKP.

A tentative plan for a SKP follow-on study has been discussed with Peter von Gronefeld, with a likely change of focus from station ops to payload ops.

On the Code ST front, Andrey Sergeyevsky has been working nearly full time on trajectory definitions for a couple of options for the Mars Sprint Mission. Although Andrey has been having problems with changes in spacecraft mass as specified by LaRC personnel, the May 1 deliverable on the analysis is mostly on time. Paul and Andrey have been invited to the Code Z Flight Mechanics working group meeting in Houston at the end of this month, which should be relevant.

Paul will be attending the Evolution Working Group integration working group session meeting the first week of May, and the Payload Manifest Working Group April 10 in Reston.

Lori Paul

Lori has updated the deliverable database and delivered a copy to Rob. Some of the deadlines are quickly approaching...

Randy Cassingham

While at JSC, Randy picked up a copy of a video tape called "Science Operations; Lessons Learned" and is having a copy made. It will be shown at the next meeting. Anyone who misses the meeting can borrow the tape from Randy.

Upcoming Meetings

Mar 23-24: Mid-year review of all PR&A tasks in Pasadena. (Rooms: Thur: 8-12 am 180-703B; 1-4:15 pm 301-271. Fri: 9:30-12:15 300-217; 1:15-4:45 301-271.) All task managers to attend introductory session; all are encouraged to attend any session of interest or in which you have participated.

Mar 22-23: Loads and Dynamics Working Group meeting at JSC. Ed Wong to attend.

April 10: Payload Manifest Working Group meeting in Reston. Paul Henry to attend.

May TBD: Evolution Working Group integration working group

Attendee List

JPL Space Station Utilization Team/JSC Astronaut Office Meeting
Held at JSC on Tuesday, March 14, 1989

From JPL:

Name	Mail	FTS #	NASAMail
John Bosley	301-285	792-1754	JJBosley
Randy Cassingham	301-285	792-1273	RCassingham
Paul Henry	301-285	792-1257	PHenry
Don Maund	301-285	(209) 463-8641	
Robert Staehle	301-285	792-1176	RStaehle

From JSC:

Name	Mail	FTS #	NASAMail
Jay Apt	CB	525-2771	JApt
Karen Archard	DF42	525-2571	
Russ Filler	CB	525-4742	
Bill Fisher	CB	525-2780	
Craig Fundling	DF42	525-0840	
Dave Hilmers	CB	525-2750	DHilmers
David Klaus	DF42	525-2592	
Shannon Lucid	CB	525-2762	S.Lucid
Paul Reveley	CA8	525-2839	CB.Space.Station

(Apt, Fisher, Hilmers and Lucid are astronauts; all have flown except Apt).

Recent Space Station-related items from Code L's "Daily News in Brief"...

AEROSPACE DAILY, MARCH 16

"U.S., JAPAN SIGN SPACE STATION MEMORANDUM OF UNDERSTANDING"

"NASA Administrator James Fletcher and Japanese Ambassador H.E. Nobuo Matsunago Tuesday signed a memorandum of understanding to cooperate on development of the Space Station."

Japan will provide the Japan Experiment Module. It will be a permanent fixture on Space Station Freedom and will consist of a pressurized laboratory unit, at least two logistics modules for the experiments and a facility designed to expose experiments to the outside environment.

The MOU will become effective when both nations notify each other that all procedures have been completed.

(Quote from Pres. Bush from his conversation with the Discovery crew on 3/16)

"And let me just -- while we're on the air to space -- let me simply say to everyone at NASA that you have our strong support. I know I speak for the Vice President. The space program, especially Space Station Freedom, is an investment in our future. We're living in tough budgetary times, but I am determined to go forward with a strong, active space program."

AEROSPACE DAILY, MARCH 21

"LOCKHEED DELIVERS SPACE STATION TEST HARDWARE TO JSC"

"A ground test unit of a thermal control system for the Space Station was delivered by Lockheed to Johnson Space Center where it will be tested in JSC's thermal-vacuum facility."

The DAILY reports the unit will provide proof-of-concept testing of the system that will remove excess heat from inside the Space Station modules and from attached payloads and radiate it into space.

AEROSPACE DAILY, MARCH 21

"PROGRESS DOCKS WITH MIR"

"Progress 41, an unmanned supply spacecraft launched by the Soviet Union March 16, has docked with the Mir space station."

The story reports the Soviet news agency Tass said Progress 41 docked with Mir on March 18. It said that "mutual search, approach, the...final approach and docking were carried out with the help of onboard automatic equipment," which was controlled from the ground and by the Mir cosmonauts, Aleksandr Volkov, Sergey Krikalev and Valeriy Polyakov.

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<u>Sergeyevsky, Andrey</u>	<u>312</u>	<u>301-165</u>	<u>4-7622</u>		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHsmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
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Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
<u>Volkmer, Kent</u>	<u>311</u>	<u>301-285</u>	<u>4-1240</u>	<u>Volkmer</u>	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 87) / Printed 21 March 1989

JET PROPULSION LABORATORY**INTEROFFICE MEMORANDUM**

311.5-091

March 27, 1989

TO: Distribution
FROM: Randy Cassingham 
SUBJECT: SS Utilization Team Minutes for 27 March 1989
PRESENT: Rob Staehle, Randy Cassingham, George Goranson, Richard Masline, Richard Grumm, Lori Paul, Jerry Olivieri, Paul Henry, Charles Ivie, Govind Deshpande, John Bosley, Edward Wong, Tom Handley

Next Meeting: 3 April 1989 at 10:30 in 301-271

Rob Staehle

Thanks to all for the generally high-quality presentations and productive discussions at last week's semi-annual PR&A task review. As mentioned previously, all tasks should be sure to quickly focus on *specific* recommendations with cost and performance justifications -- the time for general studies is over. The PDR (currently scheduled for Spring/Summer 1990?) will be the last chance for general recommendations to be heard.

(PR&A task updates were covered at the review last week and will not be reiterated here...)

Paul Henry

Work on the Mars trajectory video should be starting in mid-April. Andrey Sergeyevsky will be attending a Flight Mechanics Working Group meeting in Houston this week.

John Bosley

John is coordinating with MSFC and KSC to get more information on task primitives for the A&R task. We want to be sure that we don't duplicate work already done or leave out any important items. This coordination is a direct result of the meeting earlier this month with the astronauts in Houston.

Ed Wong

Ed's work on pointing system evaluation for Code EM is finished and the report sent to Cressy. The task will wrap up with two white papers in the next two weeks, and Ed will travel to present his results in Reston at the end of April.

Chuck Ivie

Solicited inputs from RADOME, Information Systems and Distributed Ops Latency studies for discussion at the Information Systems Strategic Planning Group meeting, which he will be attending March 28-29. Chuck met with Tom Handley, Jerry Olivieri and Govind Deshpande after the meeting.

Randy Cassingham

Showed a videotape ("Science Operations: Lessons Learned") which he brought back from trip to the astronaut office at JSC. It is an interesting tape that all payload builders should see. If you missed it, you can borrow the tape from Randy.

April Deliverables

Title: Space Vehicle Deployment from Space Station *Freedom*
By: Paul Henry
To: Barry Meredith & Brian Pritchard (LaRC)
Due: 04-01-89

Upcoming Meetings

March 28-29: ISSPG meeting at GSFC. Chuck Ivie to attend.
March 30: Flight Mechanics Working Group meeting in Houston. Andrey Sergeyevsky to attend.
April 3-4: Increment Operations Development Plan meeting at JSC. Govind Deshpande and Jerry Olivier to attend.
April 10: Payload Manifest Working Group meeting in Reston. Paul Henry to attend.
May TBD: Evolution Working Group/integration working group. Paul Henry to attend.
June 20-22: AIAA International Space Station Technical Symposium in Vienna, Virginia. No one yet slated to attend.

Recent Space Station-related items from Code L's "Daily News in Brief"...

AEROSPACE DAILY, MARCH 24 "NASA SEES NO WAY TO COMMERCIALIZE TELEROBOTIC SERVICER"

"NASA has found no way to privately finance the Space Station Flight Telerobotic Servicer and is having problems with other programs slated for commercialization by order of the Office of Management and Budget, outgoing Administrator James Fletcher said yesterday."

The DAILY reports Fletcher told the House Science Space and Technology subcommittee on space science and applications that contractors are wary of investing their own money in expensive, long term programs unless they receive guarantees--in the form of termination liability agreements--that their money will be returned if NASA opts to cancel the program.

The story reports OMB targeted seven construction and hardware development programs in NASA's \$13.3 billion FY90 budget request for private financing, including \$30 million for the FTS.

"In inquiring around and in putting all the things together we really...don't see how we can make the schedule and also introduce it into the current competitive situation by some sort of privatization," Fletcher said. "At this point we don't see how to do the FTS and I'm hopeful that very soon the OMB will sign up to that notion."

The DAILY reports Rep. Bill Nelson, the committee chairman, said OMB's private financing plan was more for "budget reasons than...in the true sense of commercialization" and that he planned to go back to OMB with a proposal to reinstate the money into NASA budget.

AEROSPACE DAILY, MARCH 28 "NASA DRAFT AUTHORIZATION INCLUDES LIABILITY, PATENT PROTECTION"

"The draft \$13.3 billion FY90 NASA authorization bill sent to Congress last week includes three-year authorizations for all programs in the budget, termination liability for privately financed projects and patent protection for scientific discoveries made in space."

The DAILY reports Congress last year approved a multi-year authorization for the Space Station that set program funding levels through FY92. The draft bill submitted March 21 by outgoing Administrator James Fletcher extends the multi-year authorization to the rest of NASA's programs through FY92.

The story says NASA is seeking \$2.05 billion for the Space Station in FY90, \$2.98 billion in FY91 and \$3.49 billion in FY92. For all other NASA programs, the draft bill would authorize \$11.25 billion in FY90, \$11.65 billion in FY91 and \$12.18 billion in FY92. Any new starts requested by NASA would be in addition to these figures.

The DAILY reports the bill includes a provision that would allow NASA, with congressional approval, to enter into termination liability agreements with contractors on programs requiring private financing if the administrator "determines that privately financed construction or modification is in the best interests of the government."

Space Station Utilization Team Weekly Meeting Minutes

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Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
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Hoshizaki, Tak	326	183-501	4-6962		
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kleine, Henry	363	510-264	7-9690	HKlein	
Kosmann, William	315	264-443	4-3714		WKosmann
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
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Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi
Lyu, Michael	522	301-476	4-9411		

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Martin, Benn	780	264-648	4-8263	Benn	NSCAT
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Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
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Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
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For additions or changes to this list, contact Randy Cassingham

(total 89) / Printed 28 March 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-104

10 April 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 10 April 1989

PRESENT: Rob Staehle, Randy Cassingham, Tom Handley, John Bosley, Lori Paul, Govind Deshpande, Kent Volkmer, George Goranson, Jerry Olivieri

Next Meeting: 17 April 1989 at 10:30 in 301-271

Note: The April 3 meeting was cancelled due to travel.

At the beginning of the meeting, the attendees watched Lennard Fisk's introduction to a press conference to discuss NASA's planetary missions for the upcoming decades. Fisk said that 35 missions were planned and funded for the next five years -- the highest science launch rate since the 60's. The resulting prime mission results, which will be virtually continuous from 1990 through 2006, would "erase all doubt about the U.S.'s superiority in planetary exploration"...

Rob Staehle

Tanner seems interested in supporting an evolution in PR&A's role more toward Program Engineering. While the language of the changes is not yet known, it will likely follow the scenario outlined by Laeser when he was here for the task review last month.

A User Accommodations Panel meeting is scheduled this Wednesday through Friday in Fairfax VA. Mike Devirian and Bob Vuolo may attend; there will be no Pasadena representative.

Rob, John Bosley and Kent Volkmer have received a report from Lockheed/JSC, *Space Station Accommodations for Piloted Mars/Lunar Initiatives*. The report covers the station accommodations that would be used (or "should" be available) to accommodate this type of mission. Discussion in the meeting concerned the impact of the decision of whether the station should be considered a "science platform" or a "transportation node". If assembled at the space station itself, a manned Mars mission would likely shut down all or almost all science operations. A lunar mission is much less demanding and, with a heavy launch vehicle, might not require any on-orbit assembly. Any facilities for Martian or lunar missions might also co-orbit with the station at sufficient distance to not unduly interfere with other station operations.

Tom Handley

Tom's Data Handling Options report's executive summary has been re-written to better reflect the study's depth. After incorporating changes requested by PR&A, the report was sent to Reston again last week.

Jerry Olivier

Jerry attended the "interesting" Integrated Operations Development Plan (IODP) meeting in Houston last week. MSFC represented Code E. The importance of command and data handling was stressed, and various parts of the Program seem to be coming together on this pretty well. There was also little disagreement on what the top issues were: latency and command verification.

Jerry's latency study is focusing on how architecture and security will affect operations. Security is a problem: certain (private or discreet) information in the data flow must be blocked prior to dissemination around to the centers/investigators. There also seems to be a problem in that it seems that there is an over-reliance on NASCOM facilities -- no one seems to be checking whether or not NASCOM has the capacity to provide coverage for the many users who are apparently planning for it.

Data planning by the EOS-DIS (Data Information System) seems to be much more advanced than the station as a whole.

George Goranson

The need for some sort of on-orbit debris measurement was discussed. George will be presenting a recommendation to Jim Doane/PR&A that a flight experiment is needed to validate the models of the orbital debris environment for the station. A large structure was discussed, which could be put into orbit for some period to assess impacts. LDEF, which was left in orbit in 1984, is scheduled for retrieval late this year, and may be able to yield some useful data. But there is some concern as to what LDEF's priority is; it could be sacrificed if there is a slip in the Shuttle schedule. Should the SSFP back its return as a high priority?

Kent Volkmer

Kent is working on reviewing automation and robotics proposals for Level 2 that came through the work packages. John Bosley is also assisting on this. John commented that the proposals are suffering in quality since the RFP was issued very informally. Kent is trying to find proposals regarding A&R activities for the baseline station, but most of the proposals are based on accelerating current testbed activities. Jeff H. Smith plans to exercise his A&R model in the course of evaluating the proposals.

Govind Deshpande

Govind also attended the IODP meeting in Houston last week, and also stayed for the Design Reference Missions (DRM) meetings (discussed below) while he was there.

A new concept was brought up at the IODP meeting -- the Distributed Science Operations Center (DSOC, similar to the older Discipline Ops Center concept). Harvey Golden/MSFC is conducting a study for Code E to determine the cost implications of alternative sites for DSOCs. JPL should have an opportunity to comment on MSFC's study before Code E takes a stand on the issue. Rob suggested that Govind meet with Dick Grumm and Hershel Fitzhugh to coordinate some of this.

The Space Station Information System Technical Integration Panel (SSIS-TIP) has been dissolved, though their functions will be picked up by Dave Pruett/SSE.

At the DRM meetings (run by Kathy Cannon/SSU), seven DRMs were identified, representing assembly through mature operations. A preliminary assessment of the DRMs has recently been concluded. However, complete data were not available. They will be compiling more data over the next few months to support the PDR. Govind offered them use of the models JPL has developed for use in support of the DRM activity.

Lori Paul

Lori is following up on the deliverables noted in (or produced by) the recent PR&A review, and is working on updating the deliverables data base.

Work on the SSFP Documentation Library has started; this will compile as much printed documentation as possible in one place for reference use. Lori is currently trying to hunt down some tan 4-drawer file cabinets. Please contact her if you have any extras.

John Bosley

The Attached Payload Accommodations Strategy task is making several specific recommendations, which Paul is currently prioritizing. (For example, a SKP looks like a good solution to several problems that were uncovered.) John has received some good software for showing the data generated. The software shows multi-variate data quite well (up to four dimensions can be shown on screen). Anyone interested in a demo of the software should contact John.

Upcoming Meetings

May TBD: Evolution Working Group/integration working group. Paul Henry to attend.

May 31-June 1: "Pathway to the Planets" workshop sponsored by Code Z in Washington DC. No one yet slated to attend.

June 20-22: AIAA International Space Station Technical Symposium in Vienna, Virginia. No one yet slated to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

NEW YORK TIMES, APRIL 9 "HIGH RISK OF SHUTTLE DISASTER LEADS NASA TO CONSIDER OPTIONS"

"The space agency is worried that another catastrophic space shuttle accident seems almost inevitable in the next decade so it is improving the winged spaceships still more and considering a switch to unmanned rockets for some missions."

The TIMES reports for any single shuttle flight, NASA now estimates the risk of "catastrophic failure in the fiery ascent to orbit at 1 in 78."

→ The paper says the latest estimates of risk "suggest that a shuttle catastrophe is likely to occur before the space station can be completed."

The TIMES reports J.R. Thompson director of NASA's Marshall Space Flight Center, said NASA needs to avoid complacency after the recent shuttle successes and press ahead on finding ways to reduce risk.

"There are going to be failures in the future, and we should try to minimize that" by improving the shuttle, he said.

UNITED PRESS INTERNATIONAL, APRIL 10 By: William Harwood

"Top NASA managers met Monday to debate a plan to launch the original shuttle Columbia around Aug. 1, one month later than planned, in a move that could delay another military flight from August to November, officials said."

UPI reports while no final decisions were made, engineers at the Kennedy Space Center were told to proceed in the meantime with plans for a major push to get Columbia back up to flight readiness in time to support a late July or early August military mission. To reach that target, dozens of technicians and managers currently assigned to the shuttle Discovery will be assigned to Columbia instead in a round-the-clock effort to get the spacecraft ready.

The story says at the same time, shuttle managers are keeping their options open by staying prepared to fall back on plans to launch Discovery in August as currently scheduled if NASA managers and the Pentagon ultimately decide to delay Columbia's return to flight beyond this summer.

UPI reports Columbia is officially scheduled for launch July 1 on a classified DOD mission, although engineers at KSC have said for months that target cannot be achieved. They say NASA has not had the manpower or the resources to process three shuttles at

once and that Discovery and Atlantis have had priority over Columbia. As a result, post-Challenger modifications for Columbia is running behind schedule.

The story reports during a teleconference Monday, KSC Center officials recommended the new Columbia processing plan to Arnold Aldrich, the shuttle program manager in Washington. According to the plan, Columbia could be launched around Aug. 1, assuming a best-case processing schedule. But an analysis of the first three post-Challenger flight processing flows indicates a launch around Aug. 19.

UPI says Discovery had been scheduled for launch Aug. 10 on another classified DOD mission but if the Columbia plan is approved, that flight would have to be delayed to November, after Atlantis's Oct. 12 launch with the Galileo probe to Jupiter. That mission is not subject to schedule changes because in order for the Galileo probe to reach Jupiter, it must get off the ground during a monthlong launch window that begins Oct. 12. If the launch window is missed, Galileo would be grounded for two years until the planets returned to favorable positions.

UPI says if Columbia is launched in early August, Discovery would be delayed to November, delaying another Columbia flight to launch a DOD satellite and to retrieve a science satellite left in orbit in 1984 [Note: I checked with Code L; this does refer to LDEF. RC]. One concern for NASA managers is that the satellite's orbit is decaying and it is possible it will have dropped too low by December for Columbia to retrieve it.

The story says also at issue for NASA managers is when to launch the Hubble Space Telescope, currently planned for December. If Columbia is launched in December instead, the telescope could be grounded until February or March 1990. And that, in turn, could delay another DOD mission now planned for next February.

WASHINGTON POST, APRIL 12

"COMMERCIAL SPACE LABORATORY NOT NEEDED, EXPERT PANEL SAYS" By: Kathy Sawyer

"The United States has no need for the commercially developed orbital space platform for weightlessness research that the Reagan administration called for last year as a bridge to the planned larger NASA space station, the National Research Council said yesterday."

The POST reports the panel said "the vast majority of anticipated experiments" for which the commercial facility would be designed can be handled by existing and planned facilities aboard space shuttles until a permanently manned space station is built.

The paper reports the panel said the private platform, proposed by Space Industries Inc. of Houston, would depend almost entirely on government support, because there is no commercial interest. It also said that research at such an early stage requires human observation, something the platform would not provide.

The POST reports Joe Allen, president of Space Industries and a former astronaut, said the report is "encouraging" in that it says the private facility will be needed "eventually."

The NEW YORK TIMES reports this morning that NASA officials would not comment on the report. Ralph Hoodless, NASA's director for commercially developed space facilities, said NASA's response would be made in a report to Congress on May 15.

WASHINGTON POST, APRIL 12

"SOVIETS CUT MANNED FLIGHTS" By: Kathy Sawyer

"The Soviet Union has decided to suspend its pioneering manned space program at the end of this month, apparently for economic reasons."

The POST reports the decision was conveyed in an announcement by the Soviet news agency Tass that the space station Mir will be left unmanned after the current crew returns to Earth April 27.

The paper reports during the recent political campaign to elect a new Soviet legislature, Boris Yeltsin, the ousted Party leader of Moscow, gained popular support by advocating the need to divert resources from the space program toward production of consumer goods.

The POST says analysts speculated that the Soviets have decided to evacuate Mir until at least one of two major additions being prepared for the station is ready for launch, possibly late this year.

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Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		ECWong
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 89) / Printed 12 April 1989

311.5-112

17 April 1989

TO: Distribution *RL*

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 17 April 1989

PRESENT: Rob Staehle, Randy Cassingham, Dick Turner, Tom Handley, George Goranson, Hershaw Fitzhugh, Richard Grumm, Lori Paul, Edward Wong, John Bosley, Govind Deshpande, Paul Henry

Next Meeting: 24 April 1989 at 10:30 in 301-271

Rob Staehle

Anyone doing work which may merit the publication or presentation of professional society papers should contact Rob if you need support. Andrey Sergeyevsky gave a good paper in January - it helps our visibility to present our work.

Ray Tanner and Division Directors (including Dick Laeser) recently completed a technical audit of all space station centers. Tanner seems to be moving quite decisively. For instance, Tanner has directed that the station make use of the solar dynamic power generation system, relying less on photovoltaics, and has directed that more work be done on the composition of the truss structure.

PR&A is now known as PE&A - Program Engineering and Assessment.

PE&A briefed Associate Administrator for Space Station James Odom and Associate Administrator for Space Science and Applications Lennard Fisk on POP servicing last Friday. It appears that the POP platforms will not be relying on servicing. Code E has expressed concern over add-on servicing because they think the add-on will interfere with the field of view of existing instruments.

Mike Devirian attended the User Accommodations Panel meeting last week. The multi-lateral utilization study was sharply criticized because it was based on the utilization requirements of a single set of payloads to project future payload requirements. Our work (especially data handling, pointing and attached payload accommodation strategy tasks) should not be constrained by a single payload set. In the past, C/Rs were encouraged to relate to particular payloads.

Rob has talked to a lot of people to gather information on the Long-Duration Exposure Facility (LDEF). LDEF will re-enter the atmosphere in December or January, unless the Sun's activity stays at a high level - then, it may re-enter as early as October. It is manifested for return in mid-November (on the return flight of a Syncor satellite mission). The manifest is very tight; any slip could jeopardize some mission. LDEF seems to have a fairly low priority (behind such payloads as Galileo, Hubble Space Telescope and several DOD missions). It appears that the SDI Organization is backing LDEF's return. On the JPL side, Divisions 35 and 52 will likely advocate a high priority for retrieval, both for the space station and for other reasons. Tomorrow, Tanner will be briefed on orbital debris; Jim Doane will mention that LDEF's retrieval would help in debris studies. In the meantime, Dana Brewer/SSE may be drafting a letter for Odom to sign that advocates a strong space station position for LDEF retrieval. Finally, JPL may take an institutional position to promote the higher-priority return of LDEF, but not if this involves any added risk to Galileo's

October launch. (At the Tanner briefing, PE&A took the action to draft the letter for Odom's signature.)

Rob, Paul Henry and Andrey Sergeyevsky met with Bob Mitchell (Manager, 312), who is interested in getting 312's lunar trajectory planning capabilities back on line. We had to let some Code ST lunar trajectory work go to JSC this January. Section 312 couldn't take it on because of a lack of software, which greatly concerns (Div 31 manager) Frank Jordan. Rob and Bob will meet with Frank on Wednesday.

There is a growing intolerance in the program for late deliverables, especially since Tanner has come on and is starting to move quickly. Task managers are encouraged to set clear deliverable dates and stick to them closely.

As directed by PE&A, there is **no** FY90 carryover in the current budget for PE&A tasks. PE&A accounts may be exhausted by October 1. Rob is working to get some sort of idea as to funding levels for next year so work is not interrupted. Rob will work with Reston on obtaining reserves to cover the gap between the end of the fiscal year and new funds arrival. Managers of non-PE&A tasks which are expected to continue should verify that they have budgeted for up to six weeks' delay in FY90 funds arrival, or longer if their sponsors' past performance warrants.

Dick Turner

Dick's support to PE&A is on hold while he awaits their direction; Dick presented several options on how to proceed.

May be getting some Eos money (about \$75k) from Scolese/GSFC to work on instrument design options to facilitate servicing, such as packaging concepts for easily removable parts. Current baseline is a SAR, such as the old SIR-B package. In order to prove the concept, work would need to be done on at least flight-type hardware, not a mockup. This way, it would be easy to assess whether the servicing was successful – the serviced equipment would either work afterward or not. Jim Graf and Mike Mangano proposed a SIR-B servicing demo three years ago, but it was not funded. The new joint task with GSFC may lead to some kind of real demo, which would take place at GSFC. People in 35 or 347 may become involved in the JPL effort. The new demo, if accomplished, is not likely to involve SIR-B.

Dick is working on a paper with Wayne Zimmerman/347 for the 1989 Satellite Servicing Working Group conference June 21-23 at JSC. Rob encourage Dick to submit the paper to a journal.

Tom Handley

PE&A is reviewing the changes in Tom's high-rate data report. Bob Vuolo/PE&A will be briefing Tanner on April 24 on high-rate data transfers and the ability of ground processing to keep up. There was some discussion on how much data can be handled on the ground. The station will be downlinking up to 300 mbps. The Eos Central Data Handling Facility, for instance, will be able to process 50 mbps. The question came up as to what JPL can handle (e.g., what will Magellan be transferring? Tom will check on it). Tom is giving PE&A a task completion plan on Thursday.

Hershal Fitzhugh

In response to a memo, Charles Elachi has said yes, manned base (attached payload) and EOS (polar platform instrument) mission operations facilities at JPL *will* be combined into one. This position seems quite firm. Our microgravity people are assuming they will be included in this facility for their space station operations.

Fitz will be attending the Crew Utilization workshop in Columbia MD and the Space Station Science and Applications Advisory Committee meeting in Washington DC next week.

Dick Grumm

Dick is trying to determine if there are any other payload developers (besides the Modular Containerless Processing Facility) who require "joy-sticking", or real-time payload control. He has not been able to find anyone at JPL so far.

There was some discussion on a new telephone network that will be installed around the nation that will be able to easily transfer large amounts of data and will interface well with other data systems. It will feature two 64kbps channels (one data, one voice). Pacific Bell will have California completely wired with the system by 1995 (starting in 1991). A suggestion was made at a working group meeting to put the station on the same system, but that would actually enable anyone to "call up" any payload on the station.

During a discussion on telescience, it was mentioned that Henry Harris/312 actually controlled the Shuttle Imaging Radar using early-model Apple microcomputers. He may be able to provide some interesting insight regarding remote operations.

Lori Paul

Most of the new deliverable (mostly due to the recent review) are now entered in the data base. Lori is following up to make sure all of the March deliverables were actually delivered.

Rob emphasized his request that task managers cooperate with Lori in maintaining and tracking our commitments. Lori reports that most task manager are being cooperative.

Ed Wong

Two white papers are now in review, and are a bit late.

Ed is working on requirements for acceleration levels for Mike Urban/PE&A, which will also help feed into Ed's work on the general disturbance budget modeling. There was some discussion as to whether the existing data bases adequately reflected payloads' microgravity requirements. Dick Grumm reported that some of his inputs were translated in a deceptive and perhaps overly stringent manner before they were entered into the data bases. This is partly a result of the data base structure. Another question was raised as to how the composition of the truss components (graphite/epoxy vs aluminum) would affect disturbances around the station. This issue is not resolved; according to Ed, the parameters in the model can be changed, but with some difficulty.

Frank Donivan/PE&A has requested Ed's help on TDRSS antenna pointing. The station's antenna is baselined to be at the end of a 16 meter (52.5 feet) boom to ensure a complete field of view, and must point to one-tenth of a degree. How will disturbances affect the antenna's ability to point accurately?

Paul Henry/John Bosley

The Attached Payload Accommodation Strategies report will be in final draft form in the next day or so. Referring to earlier discussion, the study and resulting recommendations are *not* based on a particular set of payloads - they tried to look down the road toward future needs and have made a prioritized list of recommendations to accommodate them. Attach points, physical storage, data and power are big issues; some of the recommendations are designed to help alleviate these problems.

The Stationkeeping Platform report is coming along. All major sections have been written, but have not yet been assembled into a unit.

Andrey Sergeyevsky's work is slightly ahead of schedule. Work can start on the Mars trajectory without him while he's on vacation for most of May. Someone, perhaps from 312, may be needed to help get it done.

At the Payload Manifest Working Group meeting last week, Paul noted a more realistic manifest of assembly flights. Another assembly flight has been added, to a total of 21, but even then the US portion of the Columbus and JEM modules won't be outfitted, though the US Lab module will be.

Paul will be attending the AAS/GSFC International Symposium on Orbital Mechanics and Mission Design at GSFC April 27. Several JPL papers unrelated to space station will be presented at the symposium. While at GSFC, Paul will also be attending the Code Z Flight Mechanics Working Group meeting on April 28. May 1-5, he'll be attending the LaRC Evolution Working Group Integrated Working Session meetings.

Upcoming Meetings

April 18-19: UMRIS/UMBD meeting at LeRC. Ken McGraw to attend for Leigh Rosenberg.
April 24: Briefing to Tanner on High-Rate Data. Bob Vuolo to present Tom Handley's material.
April 24-26: Crew Utilization workshop in Columbia MD. Hershal Fitzhugh and Eugene Trinh to attend.
April 27: AAS/GSFC International Symposium on Orbital Mechanics and Mission Design. Paul Henry to attend.
April 28: Code Z Flight Mechanics Working Group meeting at GSFC. Paul Henry to attend.
April 27-28: Space Station Science and Applications Advisory Committee meeting in Washington DC. Hershal Fitzhugh to attend.
May TBD: Evolution Working Group/integration working group. Paul Henry to attend.
May 1-5: Evolution Working Group Integrated Working Session meeting at LaRC. Paul Henry to attend.
May 31-June 1: "Pathway to the Planets" workshop sponsored by Code Z in Washington DC. Rob Staehle to attend.
June 20-22: AIAA International Space Station Technical Symposium in Vienna, Virginia. No one yet slated to attend.
June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

Recent Space Station-related Items from Code L's "Daily News in Brief" (Typos not corrected...)

WASHINGTON POST, APRIL 13

"SPACE HIATUS INSIGNIFICANT, SOVIETS SAY"

"Soviet officials said today that their decision to leave the orbiting space station Mir unmanned for several months was the result of a technical hitch and did not represent a cessation of the Soviet manned space program, the official news agency Tass reported."

The POST reports Tass, in a report quoting deputy mission chief Viktor Blagov, said that suspension of the Mir missions was caused by delays in preparation of new research and support modules that will be fitted to the space station, and it also appeared to rule out a link between the halt and public criticism of the high cost of the space effort.

The paper reports Tass did not say how long the space station will be left unmanned after the current crew leaves April 27. A commentator on Soviet television's main evening news program said, however, that the station would remain unmanned for three months.

The POST reports Roald Sagdeev, director of Moscow's space research institute said: "It is just going to be a regular interval, nothing more. It is a traditional procedure after a long expedition to reassess what is going on, to refurbish the craft and so on."

AEROSPACE DAILY, APRIL 14

"SOVIETS ACKNOWLEDGE DELAY IN MIR MODULE PLANS"

"The Soviet Union acknowledged that delays in preparation of new modules or the Mir space station have prompted plans to mothball the station after the recovery later this month (April 27) of its three man crew."

The DAILY reports the news agency Tass, in an April 12 statement, quoted deputy flight director Viktor Blagov as saying that Mir "will be left unmanned for several months due to delays with the preparation of two research modules for it." It identified them as "a re-equipping module and a technological module."

The DAILY reports top Soviet space officials responded more directly to criticism of the space program. Academician V.S. Avduyevskiy, in an April 10 interview on the "Vremya" television program, acknowledged "sharp discussions" in the Soviet press and speeches of various officials "on questions of spending in space." he said that "Space must get its set budget and it must be utilized to the best effect in order not to damage scientific research or the national economy. And, most importantly, our country's technical level must not fall, but on the contrary rise."

The story says Avduyevskiy also acknowledged excessive secretiveness in the program in the past saying that "we made artificial barriers." But he argued against making the budget public. "If all the budgets are published," he said, "we shall see that this price, the price of space research, will drown in the budgets of other recklessly spent money."

The DAILY says Roald Sagdeyev, a space advisor to Soviet leader Mikhail Gorbachev, was quoted as saying that "there is not yet a single approved outer space research program, and this will unfailingly lead to lagging behind the world level of research."

AVIATION WEEK & SPACE TECHNOLOGY, APRIL 17
"SOVIET STATION ELECTRICAL PROBLEMS FORCE MIR REPAIR MISSION"

"The Soviet cosmonaut crew on board Mir is preparing the space station for two to three months of unmanned flight to give the USSR time to undertake a repair mission to fix serious electrical power problems on the facility."

AV WEEK reports an electrical short or degradation of the Mir solar arrays has begun to limit severely the power available on the station. The station's life support system is the largest user of power on the facility. A Soyuz mission carrying a crew to specifically repair Mir will be launched in the next two to three months.

The magazine also reports that Soviet space officials have told Western officials that Soviet management changes in the IKI Space Research Institute are possible as a result of the two Phobos Mars mission failures. The Moscow-based institute was heavily involved in the Phobos mission.

AV WEEK reports the Soviets are tentatively considering the use of a Phobos ground spare spacecraft in an attempt to repeat the Mars mission, possible in 1992.

AEROSPACE DAILY, APRIL 18
"MIR COSMONAUTS, READYING FOR RETURN, BEGIN SPACESUIT EXERCISES"

"The three cosmonauts aboard the Soviet space station Mir, preparing to return to Earth later this month (April 27), have begun to train in their spacesuits, according to the news agency Tass."

The DAILY reports observers in the Netherlands say that the cosmonauts have reported difficulties with the Mir itself. They say crewmen have, at various times, reported condensation high enough to fog the portholes; a high temperature; a pressure leak; a water leak behind a panel which could present problems for the electrical system; and a faulty power supply--not enough power to operate the computers.

Space Station Utilization Team Weekly Meeting Minutes

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Deshpande, Govind	311	301-285	4-1279	GDeshpande	
<u>Devirian, Mike</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7209</u>	<u>MDevirian</u>	
Diner, David	324	169-237	4-6319		
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Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
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Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Hoshizaki, Tak	326	183-501	4-6962		
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Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kleine, Henry	363	510-264	7-9690	HKlein	
Kosmann, William	315	264-443	4-3714		WKosmann
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
<u>Laeser, Dick</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7200</u>	<u>RLaeser</u>	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi
Lyu, Michael	522	301-476	4-9411		

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Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Marzwell, Neville	347	198-330	4-6543		
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA	95204		MHumfreville
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
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Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 89) / Printed 19 April 1989

311.5-120

24 April 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 24 April 1989

PRESENT: Rob Staehle, Randy Cassingham, Marvin Moss (for Jim Arnett), George Goranson, Richard Grumm, Tom Handley, Govind Deshpande, Leigh Rosenberg, David Rathbun (for Ed Wong), Paul Henry

Next Meeting: 1 May 1989 at 10:30 in 301-271

Correction to last week's minutes

The report in last week's minutes under "Tom Handley" about the high rate data briefing to Ray Tanner contained inaccuracies. Mike Devirian provided the following clarification:

Devirian is briefing Tanner, along with Phil Cressy, on requirements for high rate data collection and transmission.

Mention will be made of work done by Handley, et al., relating to high rate bottlenecks on-board, to be briefed separately.

Focus is on requirements, and rationale for them. This is in response to request from Tanner a couple months ago to give him background on the 300 Mbps requirement, but is newly framed in terms of the Technical Audit issues related to both the downlink data rate and the on-board architecture bottlenecks, for which PE&A has the lead.

Rob Staehle

PE&A's (Program Engineering and Assessment, née PR&A) official role statement has been issued. See attachment 1.

The November Shuttle mission that will retrieve the Long Duration Exposure Facility appears to be solid on the manifest again. One of the two DOD missions between the launch of Magellan and Galileo has been slipped, mostly to assure that LDEF's retrieval chances are reinforced. At PE&A's request, Rob drafted a letter to Richard Truly for Jim Odom to sign which expresses support for LDEF's retrieval. It is not yet known if this letter will be signed.

Rob and Bob Mitchell/312 met with Frank Jordan/31 to discuss getting 312's ability to do lunar trajectory work back up to speed. With support from Rob and Paul Henry, 312 may request funding from Code ST to get some new software on line to support this kind of work. A lack of such software resulted in some work being given to JSC instead of JPL earlier this year.

Rob met with Frank Wright/74 and Charles Elachi to discuss plans for OSSI work and funding for next year. Charles Elachi appears supportive of continued Space Station utilization work as Rob outlined. Elachi will be reviewing POPs and RTOPs for FY90 work.

Rob has a copy of the newly released OSSA *Science Utilization Management for the Freedom Manned Base* document if anyone is interested in getting a copy.

Rob invited meeting attendees to visit asteroid 3875 *Staehle*, named recently by its discoverer, Eleanor Helin/326. It orbits the sun every 3.32 years from just outside Mars' orbit to the middle of the Main Belt. The naming was in recognition of support provided by the World Space Foundation to Helin's asteroid discovery effort at JPL. Those wishing to visit must provide their own transportation...

Randy Cassingham

Last years' case study reports continue to be "best sellers". A dozen copies of the LDR report were just requested by the Evolution Working Group, necessitating a reprint. Randy has the stock of extra copies of the reports, and can provide a list of the titles to anyone who thinks he missed one.

Marvin Moss

Marvin is working with Jim Arnett on the strawman Availability Requirements document. Availability is a function of reliability and maintainability, which helps to predict the fraction of time a particular system will be available for use.

Dick Grumm

Hershal Fitzhugh and Eugene Trinh are at the Crew Utilization workshop this week. An interesting issue has already been noted: as telescience capabilities improve, the skill level of station crewmembers must *increase*. Since telescience will enable more sophisticated experiments to be done, the need increases for well-trained observers to clearly report unanticipated results to ground-based investigators. Telescience is likely to be first applied to the more repetitive and mundane aspects of experiment operation.

Dick attended a meeting of the Code E Intercenter Systems Engineering Team (ISET, which represents Code E payloads), where the ability of ISDN to support high-rate data communications was discussed. (For a good primer on ISDN – integrated services digital network – see the April issue of *PC/Computing* magazine; a basic description was included in last week's minutes.) ISET is in favor of implementing a standardized ISDN system on the station as it seems to meet Code E requirements for high data rates, but there is some question as to how best to promote its implementation.

During discussion of ISDN, Tom Handley noted that the high data rate community is looking at ISDN with some interest. Govind Deshpande noted that Jack Bingham/JSC told him that ISDN was looked at – along with other options – but it was rejected since there did not seem to be any requirement for it. Others at JSC are recommending its adoption by space station.

Tom Handley

PE&A's final comments on the high rate data report have been received and are being reviewed and incorporated.

Tom has been "answering a lot of questions" to support a briefing on high data rate issues being given to Ray Tanner today. The prime question: whether ground facilities can support the continuous 300 mbps data stream that will be coming down from the station.

Govind Deshpande

Allan Webb was here last week to go over the RADOME simulation model. A review of the task has been scheduled in Reston for May 4.

Leigh Rosenberg

Leigh met with Allan Webb when he was here last week and worked out a schedule and plan for the rest of the year on the Requirements Refinement task (latency study). A task review in Reston is scheduled for June 2.

Ken McGraw attended last week's UOIPG meeting for Leigh. The UMRIS data base has apparently been renamed the User Mission Data Base (UMDB), and is now available on TMIS (but without any data in it). Leigh will be attempting access via TMIS this week. Once Leigh has the system up and running, he will recruit a couple of prospective station users to try the data base structure out so he can get some feedback. (Dick Grumm noted that since it was taking so long to get on line, Code S "gave up" on UMRIS and created their own data base (SUMIT), which was put together so quickly that it suffered from many problems. Dick noted that there seems to be a very large number of data bases that have been created, apparently for the same reason that UMRIS/UMDB took so long to get on line. The UOIPG is looking into this issue; the point of the UMRIS/UMDB is to consolidate requirements for user input.)

David Rathbun

The white paper for PE&A on the base isolation for the payload pointing system is done, but not yet printed. A hard mount for the PPS will meet requirements, but without any margin for error. A passive isolation system (using springs and such to dampen high frequency vibrations) would be better than hard mounting by about a factor of three. Magnetic suspension isolators failed a cost/weight tradeoff analysis.

Paul Henry

The Attached Payload Accommodation Strategies task paper is done. The executive summary was faxed to Dave Hixon on Friday; the full text is going out by pouch Tuesday.

All of the sections of the Station Keeping Platform study are now in place, and Paul is writing bridging text. The last section to come in, contamination issues by Jerry Millard/354, is very good. The results show the distribution of STS contaminants is quite variable, presenting some issues as to where SKPs – and contamination-sensitive payloads – should be mounted. Paul will present a summary of the SKP study to GSFC on Friday while there for the Flight Mechanics Working Group meeting. He'll then slip over to Reston to present the SKP and Attached Payload Accommodation Strategies tasks to PE&A Friday afternoon.

Andrey Sergeyevsky has come up with some very interesting and complex scenarios for the Spacecraft Deployment from Space Station task. These are for Mars expeditions, some involving a Venus swingby.

Paul's whirlwind meeting schedule continues: an Evolution Working Group integrated working session at LaRC May 1-5, where Paul will be presenting the manned Mars trajectory analysis performed by Andrey; an EWG transportation node meeting May 16-18 at LaRC; and a June 9 EWG meeting at McDonnell Douglas to look at scenarios involving tank farm installation to be demonstrated in their neutral buoyancy tank.

The planetary trajectory movie for Code ST is on hold until Andrey returns from vacation. Paul will check to see what kind of deadline ST is thinking of for the movie to make sure this is acceptable.

Upcoming Meetings

April 24-26: Crew Utilization workshop in Columbia MD. Hershal Fitzhugh and Eugene Trinh to attend.

April 27: AAS/GSFC International Symposium on Orbital Mechanics and Mission Design. Paul Henry to attend.

April 28: Code Z Flight Mechanics Working Group meeting at GSFC. Paul Henry to attend.

April 27-28: Space Station Science and Applications Advisory Committee meeting in Washington DC. Hershal Fitzhugh to attend.

May 1-5: Evolution Working Group Integrated Working Session meeting at LaRC. Paul Henry to attend.

May 4: RADOME simulation model task review meeting at PE&A. Govind Deshpande to attend.

May TBD (mid-month): UOIPG meeting at MSFC. Leigh Rosenberg to attend.

May 16-18: EWG meeting at LaRC. Paul Henry to attend.

May 31-June 1: "Pathway to the Planets" workshop sponsored by Code Z in Washington DC. Rob Staehle to attend.

June 2: Requirements Refinement task review at PE&A. Leigh Rosenberg to attend.

June 9: EWG meeting at McDonnell Douglas/Huntington Beach re: tank farm installation. Paul Henry to attend; Paul will see if others may attend also. A demo will be given in their neutral buoyancy tank.

June 20-22: AIAA International Space Station Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

WASHINGTON POST, APRIL 20

"ORBITING LAB RAISES QUESTIONS OF MISSION, NEED" By: Kathy Sawyer

"In Texas, ~~awerspace~~ engineers have guillotined laboratory rats while floating in weightlessness at the top of an ~~ark~~ flown in an airplane. They are developing equipment to capture and preserve blood in an animal-research facility intended to fly aboard NASA's planned space station.

In Alabama, engineers have built experimental devices that they hope will turn sweat, urine and dirty dishwater into clean water for drinking, washing and scientific research. The space station must have a lightweight self-sustaining life-support system.

In California and Texas, space-suited astronauts and engineers have practiced tightening bolts and stringing cables while submerged in deep tanks of water. They are developing construction methods that can be used to assemble the outpost in orbit."

The POST story this morning, is the first of two articles entitled, "Crossroads In Space--Policy Choices for the 21st Century."

The paper says NASA is spending \$50 million a month to design the facility, "an amount that will rise steeply when construction begins." It says the station's development is expected to employ about 52,000 people in 14 states. In orbit, the facility is scheduled to house a crew of four by 1996, with finishing touches to be completed by 1998, and to operate for at least 30 years with crews of up to eight.

The POST says "there is smoldering disagreement" about uses of a space station--and whether it is needed. "Some proposed uses are incompatable." Also there is concern about the station's "total dependence" on the "sometimes unreliable space shuttle" for delivering components into orbit.

The article says there is the "persistent threat" of funding cutbacks that "could already be forcing the space station into a pattern of overpromising and underfunding."

The POST says "space policy analysts" believe the space station project is at a stage when President Bush and Congress must soon decide how to proceed. "Most Critically, they say, the space station should not be seen as a long-range goal in itself but as a stepping stone toward such goals as colonizing the moon, landing astronauts on Mars, or both."

WASHINGTON POST, APRIL 21
"MISSION TO MOON, OR MARS?" By: Kathy Sawyer

"Until recently, the scientists who wanted to send astronauts back to the moon were virtually an underground cult, forgotten refugees of the long-defunct Apollo program who worked in isolation with stacks of reports in Building 31 at the Johnson Space Center."

"Nobody knew where we were," said Wendell Mendell, a NASA scientist. "And when we started talking about the moon, we were told to shut up, that it would compete with the Space Station."

The POST says a more distant goal--a major manned expedition to Mars--remains the "Holy Grail of space explorers." But in the last year and a half, a shifting political and economic tide has "drawn the moon people into the light." Awareness of the high costs and risks of space endeavors has made returning to the moon, and establishing a small base there, an increasingly visible option in official NASA studies and at scientific conferences.

The paper says any new space project involving humans will require a substantial increase in NASA's budget. Even an unmanned endeavor such as the proposed Mission to Planet Earth "will need additional billions of dollars to launch Earth observing satellites."

The POST says the debate over long range goals for human exploration is sometimes cast as a choice between the moon and Mars. But "as many see it," the issue is whether to use the moon as a steppingstone to Mars or to go straight to Mars. The question "turns more on issues of strategy, philosophy and pace than of destination."

"It's time we put the 'why' above the 'where' for a change," said Mark Craig, manager of the lunar/Mars exploration office at JSC. "The two most vocal groups," he said, "are those supporting a lunar base as a means to develop a long term infrastructure in space, on one hand, and those favoring a Mars mission on the other. But there are more people in the middle who want to do both."

"There are only two places we can go," said Frank Martin, head of NASA's office of exploration, who feels the selection of a specific goal is therefore unnecessary, or is implicit.

WASHINGTON TIMES, APRIL 21
"MARIETTA TO BUILD CELESTIAL ROBOT" By: Pam McClintock

"Martin Marietta Corp. yesterday won a \$297 million contract from NASA to provide a space robot that will help construct and maintain the Space Station Freedom, the federal agency announced."

The paper says terms of the agreement between NASA's Goddard Space Flight Center and Martin Marietta Space Systems for the Flight Telerobotic Servicer (FTS) contract have yet to be finalized.

→ The story says the robot will reduce the amount of time astronauts have to spend putting the space station together. It will also eliminate any need for astronauts to go out into space.

WALL STREET JOURNAL, APRIL 25
"SIX TOP NASA MANAGERS QUIT TO AVOID CURBS ON PRIVATE JOBS UNDER NEW RULES" By: Bob Davis

"The National Aeronautics and Space Administration said six top managers resigned, prior to the effective date of new conflict of interest rules that make it harder for senior government workers to find jobs in private industry."

"We have a serious brain drain going on here," said a NASA spokesman.

→ The JOURNAL reports the six NASA officials who resigned are Noel Hiners, associate deputy administrator, who is NASA's third-ranking official; James Odom, head of the Space Station program; Jon McBride, an astronaut and chief of congressional relations; John Thomas, head of solid rocket booster redesign at Marshall Space Flight Center; Bill Sneed, Marshall's policy chief; and James Downey, head of Marshall's payload project office.

The paper reports NASA said the resignations are largely the result of Congress voting down a pay raise for itself--which would have raised the salary of senior civil servants about \$10,000--and changes in the conflict-of-interest rules. The rules which take effect May 16, bar officials who have worked on procurements from taking jobs involving the contracts for two years.

The JOURNAL says NASA is especially vulnerable to losing top people because so many of its civil servants have spent their adult working lives at NASA and are past retirement age of 55. It says Sneed, 57-years old, said he would have stayed if Congress had approved the pay raise. He said he was leaving May 3 because he feared that he wouldn't be able to get another job when the conflict-of-interest rules go into effect. Hiners, 53, also said he was looking for another job. "The government isn't a reliable employer anymore," he said.

The paper says the exodus highlights NASA's growing inability to hire and retain key personnel. Hiners said that five candidates to the head of the office of aeronautics and space technology had turned down the job. "People from industry are fearful that if they come here they can't go back," he said.



Betty

National Aeronautics and
Space Administration

Washington, D.C.
20546

APR 13 1989

Reply to Attn of: SSR (RPL 89-63)

TO: Distribution
FROM: SS/Director, Space Station Freedom Program
SUBJECT: Program Engineering and Assessments Office

Effective immediately, the Program Requirements and Assessment (PR&A) Office is renamed the Program Engineering and Assessment (PE&A) Office. This name change signals a shift in PR&A/PE&A responsibility emphasis; the modified role is described in the Program Plan which is about to be issued:

Program Engineering and Assessment (PE&A) Office. The PE&A Office is responsible for providing staff assistance to the Program Director in his engineering and management integration of the program. Responsibilities specifically include: non-baseline studies and assessments; studies of baseline issues which span multiple Level II organizations; program planning; identification, development management, start-up operation and management oversight of engineering management systems that span all elements of the program; and independent assessments of the program, its operation, and its vulnerabilities.

The PE&A Office coordinates with the other Level II Groups and Offices pursuant to fulfilling its responsibilities.

The PE&A code will remain SSR. Richard Laeser and Robert Easter will continue to be the PE&A Director and Deputy Director, respectively. The internal PE&A organization structure is not changing at this time, but may in the future.

An expansion of the above summary role statement will be issued in the near future, after review and comment by each Level II Group/Office Director.

I anticipate no fundamental change in the working relationships between PE&A and the other program organizations as a result of this role clarification and change in emphasis.


E. Ray Tanner

Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Arnette, James	521	301-466	4-4452		
Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beer, Reinhard	322	183-301	4-4748		
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
Cassingham, Randy	311	301-285	4-1273	RCassingham	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Crary, Laura	311	301-285	4-1284	LCrary	
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210		
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Hoshizaki, Tak	326	183-501	4-6962		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kleine, Henry	363	510-264	7-9690	HKlein	
Kosmann, William	315	264-443	4-3714		WKosmann
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Li, Fuk	334	300-235	4-2849		FLi

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Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		
Mann, Ken	343	301-445	4-1748		MMangano
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Marzwell, Neville	347	198-330	4-6543		
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
<u>Maund, Don</u>	<u>311</u>	<u>2158 LaJolla Dr, Stockton, CA 95204</u>			<u>MHumfreville</u>
Millard, Jerry	354	89-1	4-2898		
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
<u>Rayman, Marc</u>	<u>331</u>	<u>161-135</u>	<u>4-2544</u>		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		ECWong
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 91) / Printed 25 April 1989

311.5-138

1 May 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 1 May 1989

PRESENT: Rob Staehle, Randy Cassingham, Dick Turner, Richard Masline, Kent Volkmer, George Goranson, Hershal Fitzhugh, Govind Deshpande, Leigh Rosenberg

Next Meeting: 8 May 1989 at 10:30 in 301-271

Rob Staehle

Rob went to meetings in Reston and Washington last week. At Frank Wright's request, he met with Greg Swetek/ST to see if he would be interested in our doing some work for them on on-orbit fluid storage and transfer issues. He expressed interest in our doing some pre-phase A studies to help him define later work. Any such work would likely be coordinated by the office of Technology and Applications Programs.

Rob also met with Steve Cooke/ST to discuss lunar trajectory work. They may have already let all the work they need done by now, but some more work may come our way after Code Z further defines Agency options and JSC presents their results from ongoing work. Johnny Kwok/312 will be working on a proposal.

Paul is traveling again, but Rob was in attendance when Paul presented the results of the Station Keeping Platform and Attached Payload Accommodation Strategies tasks to PE&A. The presentations went very well, and Mike Devirian is thinking about how to proceed with the results to influence space station and OSSA thinking. There was considerable interest in the contamination study done for the SKP paper by Jerry Millard/354 -- Dick Laeser had a lot of questions, and it seems that the results may have some impact on the PDRD.

The SKP study results were also presented last week to Ken Frost and others at GSFC. GSFC and General Electric are working on other aspects of the SKP in parallel with our work on the station's accommodation of SKPs.

Rob briefly discussed SKP results with Al Holt/SSU. Both agreed that a "Station Keeping Platform" could start out as small as a version of the ESA/MBB SPAS free-flyer carried by the Shuttle. Early experience could pave the way to the GSFC-type SKP employing Station ORUs, or we could proceed directly to that hardware.

(Note added after meeting) Rob also met with Dana Brewer/SSE, who helped research the LDEF retrieval position. She is interested in JPL work as it may relate to space station environmental standards (e.g., EMI/EMC), and would like JPL help in reviewing some documentation. George Goranson will soon receive the documents with which Dana wants assistance. George should advise Rob on the level of JPL involvement is likely to be best for the Space Station Program. If our further involvement is warranted, Rob will discuss resources and a plan with Jim Doane/PE&A and Dana. Jim Doane initiated the contact.

Bob Easter has asked for input on what kind of carryover funds we will need to fund PE&A tasks until new FY funding comes in (typically about six weeks after the start of the FY). Rob is making a projection based on SRM budgeting for this August and September. If this is not a

good basis for projecting the needs of your task, let him know immediately. Anyone with Reston-sponsored tasks that have no carryover allocated for next year (other than tasks that will close out at the end of this year) should call Rob.

Bing Chen will be returning July 1 from a two-year detailee position with Code EM. Anyone who may need his help should contact Rob, or Bing directly at HQ.

Rob will be presenting case study results at the Eighth International Space Development Conference in Chicago May 28-29.

Several ST accounts need to be RACRed for actuals and sent to Camille Hayes. The accounts are 510-20201, 510-20202 and 510-20204.

Dick Grumm has written a (rather lengthy) memo regarding ISDN to several people (see last week's minutes) to promote this integrated communications option for the station. There was again some discussion about ISDN and how it works. Govind Deshpande commented that ISDN is included in the Architectural Control Document, but the document is not yet approved. Richard Masline indicated that the Division 36 people working on space station data systems also endorse employment of ISDN aboard the station for a number of reasons. A group at JSC has become the leading advocate for adoption of ISDN, which would make the station compatible with a large variety of commercial communications equipment.

Bob Laskin is attending the APPAWG (Attached Payloads and Platforms Accommodations Working Group) meeting Friday. Anyone with attached payload issues that should be brought up should contact him. This meeting has been billed as the "last" APPAWG meeting before it is merged with its pressurized counterparts. Stay tuned...

And Rob passes on this NASAmail message:

This is to inform you that the narrative portion of the OSSA Space Station Utilization Calendar of Events will now be available on the ESSPG.STATUS bulletin board on NASAMAIL. The calendar will be updated and posted on the 15th and 30th of each month.

If you have any questions, contact me on this NASAMAIL ID or call me on 202-863-2975.

Thanks
Chris

Dick Turner

Dick Turner
Dick has a copy of the agenda for the 1989 Satellite Servicing Working Group conference at JSC June 21-23. Dick will be presenting on the 21st. Contact him if you want a copy of the agenda. Platform servicing people here are awaiting direction from Reston.

Richard Masline

The executive summary of the high data rate report has again been re-written and sent back to PE&A. Richard is working on the TDRSS ZOE closure issue, and is looking at whether there is any kind of problem with communications outages during station assembly -- the impact on science operations appears to be minimal. There was some discussion as to the impact on Shuttle EVAs during communications outages; in the past (i.e., pre-TDRSS), outages were much more frequent and lengthy. Did that cause problems in such operations as the EASE/ACCESS tests? Rob

suggested that one or more astronauts with EVA assembly experience be contacted before arguments of safety or productivity during assembly are raised to justify the ZOE's closure.

Kent Volkmer

Kent is checking to see whether the nine people who have expressed interest in attending the EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation can be accommodated. Apparently, this number won't be a problem.

Kent, Jeff H. Smith and Liz Carpenter discussed whether a Robot/Mobile Servicing Center collision avoidance task should be under PE&A's purview. The proposed task will look at various backup systems to assist the crew with docking. There was some discussion in the meeting as to how docking would be done; docking an incoming spacecraft to the end of a tether and "reeling it in" was one interesting option. This method might also help alleviate some contamination problems.

George Goranson

Al Holt has requested a meeting with George and Gerry Murphy to discuss FY90 work on environmental design and test requirements. They will meet on Thursday.

Hershel Fitzhugh

Fitz attended the OSSA Space Station Crew Utilization Workshop last week, which focused on who would be doing science in the pressurized labs -- career astronauts or scientists. The astronauts argue that the scientists can't be trained in the details of station operations, so generalist astronauts can do the technical work required by the experiments. The scientists argue that the astronauts can't be trained to do the detailed technical work, so the scientists should come up to do it. (The astronaut training takes about two years.) The issue was not resolved...

Fitz met with Pete Wyman/BDM (contractor to Code EM), who wrote the maintainability and serviceability document Richard Beatty/PE&A made many comments on recently. As a result of the comments, the document was completely rewritten -- from the title down. Anyone interested in reviewing the new draft document, now titled *OSSA Space Station Payload Design Guidelines for Selecting Extended-Life Options*, should contact Fitz.

Fitz also has the final report of the Payload Integration and Payload Operations workshop held in December, should anyone wish to get a copy.

A new space station newsletter is being put out by headquarters. The following NASAmail message has been circulating to solicit inputs to it:

Posted: Thu, Apr 27, 1989 11:10 AM EDT

Msg: CJLJ-2810-1763

From: EREEVES

To: SUM, EM.SSUB, RRHOME

Subj: Space Station Newsletter

The next issue of the OSS NEWSLETTER will need articles from OSSA. I have two suggestions;

1. OSSA Crew Workshop; B Siegal
2. SUM; Wicks

The articles need to be in OSS on 5/20/89. I would like to have good drafts in my hands by cob 5/12/89. If you have any additional suggestions please let Bob Rhome and me know on or before 5/5/89. Articles need to be fairly short, and directed at a general space station user. Articles should avoid acronyms, jargon, and org'n charts when possible. Any other comments are welcome, particularly suggestions for FUTURE articles from the Centers!!

Upcoming Meetings

May 1-5: Evolution Working Group Integrated Working Session meeting at LaRC. Paul Henry to attend.

May 4: RADOME simulation model task review meeting at PE&A. Govind Deshpande, Henry Kleine and Jeff L. Smith to attend.

May 4: George Goranson and Gerry Murphy (521) to see Al Holt/SSU at his request to discuss FY90 work on environmental design and test requirements.

May 5: APPAWG (Attached Payloads and Platforms Accommodations Working Group) meeting at King of Prussia. Bob Laskin to attend.

May TBD (mid-month): UOIPG meeting at MSFC. Leigh Rosenberg to attend.

May 16-? (tentative): APPAWG meeting at MSFC.

May 16-17: Operations Management System working group meeting at MSFC.

May 16-17: Pressurized Element Payload Working Group meeting at MSFC.

May 16-18: EWG meeting at LaRC. Paul Henry to attend.

May 28-29: 8th International Space Development Conference in Chicago. Rob Staehle to attend, and will present case study work.

May 31-June 1: "Pathway to the Planets" workshop sponsored by Code Z in Washington DC. Rob Staehle to attend.

June 2: Distributed Operations Concept Development (formerly Requirements Refinement) task review at PE&A. Leigh Rosenberg and Jerry Olivieri to attend.

June 6, 7 or 8: EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation. Paul Henry and several others to attend.

June 13-15: UISWG meeting in Huntington Beach.

June 20-22: AIAA International Space Station Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, APRIL 26

"HOUSE APPROPRIATIONS UNIT CONSIDERS \$575 MILLION NASA CUT"

"The House Appropriations HUD-independent agencies subcommittee asked NASA yesterday to respond by early next month to how it would absorb a \$575 million FY90 budget cut with \$400 million of it coming out of the Space Station program."

The DAILY reports Chairman Bob Traxler said budget pressure from veterans, housing and environmental programs makes it "next to impossible" to get enough money to support NASA's \$13.3 billion request.

"The Space Station will probably have to take a beating if this kind of result happens," NASA's Dale Myers told the subcommittee. "I think we'll really have to look at the overall structure of NASA again."

The DAILY reports Traxler said the subcommittee was considering two options for absorbing the proposed cut to the Space Station budget: slipping the schedule or deleting portions of the Block I design and keeping the present schedule.

The story says NASA requested \$2.1 billion for the Space Station. Myers told the subcommittee that cutting out portions of the Block I design would do little to reduce costs in FY90 and slipping the schedule for the whole program will result in higher costs.

HUNTSVILLE TIMES, APRIL 28

"BUDGET CHOICE: SPACE STATION VERSUS SUPERCOLLIDER" By: Randy Quarles

"Budget bills pending in the House and Senate could pit NASA's space station against the Department of Energy's Superconducting Super Collider."

"There's going to have to be a war between the space station and the Superconducting Super Collider," said Rep. Jack Buechner, who serves on both the House Budget Committee and the House Science, Space and Technology Committee. "I think it's going to be a hell of a fight," Buechner said.

The paper reports the space station is looking for \$2.05 billion in 1990. The Superconducting Super Collider carries a \$5 billion construction estimate, and the administration is seeking \$250 million to start building the atom smasher.

The story reports Buechner said the split could provide openings for legislators who want to shift money away from science related programs. "If you think of the opponents of the space station, they're usually the same people who are opponents of the Superconducting Super Collider," Buechner said. "They want the money for social programs. There's a lot of people looking to pick up those dollars."

The paper says a resolution passed Thursday by the House Budget Committee is somewhat more generous than its Senate counterpart in dealing with science and technology activities. The plan sets a \$14.38 billion target, compared with \$14.2 billion in the bill approved a week earlier by the Senate Budget Committee. But neither plan comes within \$1 billion of the \$2.4 billion increase President Bush is seeking. Under Bush's plan, NASA alone would get more than \$2 billion extra for space projects.

The story says the next 1990 budget milestone for NASA will come when the House Appropriations Committee's 13-subcommittee chairmen allocate spending and outlay authority to each of their panels. The allocation will determine how much money the subcommittees can put into the bills they draft.

Space Station Utilization Team Weekly Meeting Minutes

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Beer, Reinhard	322	183-301	4-4748		
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
<u>Cassingham, Randy</u>	<u>311</u>	<u>301-285</u>	<u>4-1273</u>	<u>RCassingham</u>	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Crary, Laura	311	301-285	4-1284	LCrary	
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
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Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	<u>CElachi</u>
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	<u>HFitzhugh</u>
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
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For additions or changes to this list, contact Randy Cassingham

(total 91) / Printed 2 May 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-145

8 May 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 8 May 1989

PRESENT: Rob Staehle, Randy Cassingham, Dick Turner, Richard Masline, George Goranson, David Rathbun, John Bosley, Hershal Fitzhugh, Paul Henry, Govind Deshpande

Next Meeting: 15 May 1989 at 10:30 in 301-271

Rob Staehle

An AIAA Space Debris meeting will be held in Huntsville on May 17. Steve Gabriel and/or Neil Devine may be attending.

Code ST funds are exhausted as expected. Funding for the balance of the fiscal year is anticipated on or after May 15.

Johnny Kwok/312 will be working with Paul to prepare a proposal for developing lunar trajectory software which can be used in part to analyze departures from space station orbit.

Rob has a review copy of the document OSSA Assessment of Microgravity Environments if anyone wants to get a copy.

Representatives of the RADOME task met Mike Salcido of 311's Launch Approval Planning Group. The LAPG may allow some of the RADOME people to use their dedicated LAN for TMIS access, which has some advantages over using ILAN for access. Rob asked if Lori Paul or Jerry Olivieri might also be able to be added in, as that would be quite beneficial. Govind Deshpande will check this out.

Benn Martin has been holding weekly meetings on POP-1/POP-2 commonality. These meetings may be of interest to some of our instrument and accommodations people.

Rob just found out that Section 312 has been holding seminars on mission design and trajectory issues. The last seminar is Tuesday, May 16 from 12:05-12:55 pm in 301-169. It will cover NASA/JPL Administration. Stu Kerridge will present.

An XT-compatible computer is available for anyone working primarily on space station. If you need such a computer, call Rob by Friday.

Richard Masline

The Executive Summary of the high data rate report is still being reviewed in Reston.

Work is progressing on TDRSS zone of exclusion closure and data compression issues.

George Goranson

RIDs are due by May 19 to the space station environmental standards document. Division 52 will prepare RIDs, and may support Dana Brewer/SSE with evaluation of RIDs received from all sources. This work will be coordinated with Al Holt/SSU and Jim Doane/PE&A. Initial work will be done with Al's agreement as an add-on to the present JPL electromagnetic compatibility study.

David Rathbun

Work is progressing on the PPS Base Isolator whitepaper. According to John Sunkel/JSC, the station's thrusters will not be fired on a frequent basis, but rather only every 90 days for reboost, and would *not* be used for CMG unloading. There was some discussion in the meeting as to whether this is true. How will desaturation of CMGs be accomplished? Rob suggested that this information be cross-checked with the SE&I people in Reston.

John Bosley

John attended the Evolution Working Group integrated working session last week at GSFC. Jeff H. Smith gave a very good report on our automation and robotics work. It was quite a bit more substantive than most of the presentations. In particular, many advanced robotic "hooks and scars" were identified that look quite important.

McDonnell Douglas/KSC presented a preliminary cut at a set of A&R task primitives. This presentation reinforced our earlier impression that coordination is needed to come up with a set of primitives for common use by JSC, KSC and JPL. JPL is taking the lead for setting up a coordination meeting, which is tentatively set for early June at JSC. Our set of human EVA task primitives has been well received by the other centers; they have adopted the descriptions for their own use as a baseline.

After John and several others attended the meetings at the JSC astronaut office, John sent a letter of thanks to Dave Hilmers, again inviting them to come here to see some of our work. Hilmers just wrote back to affirm that several of the astronauts are very interested in coming here to see our A&R work, and to discuss planetary missions leaving from the station. John will work out tentative meeting dates. Giulio Varsi hopes to obtain some data using the astronauts as test subjects as they try out the telerobotic controllers.

Hershaw Fitzhugh

Fitz will be attending an OSSA Science Utilization Management/Mission Management Director's Review meeting in Charlottesville, NC, May 15-18. Representatives of all centers will be there. Bob White will also be attending, and presenting his work on payload reliability classification.

Paul Henry

Paul attended several meetings over the last two weeks. The American Astronautical Society meeting on orbital mechanics, a Code Z seminar on Earth-Moon libration points and trajectory mechanics, where some very interesting and complex material was presented, and the EWG integrated session.

Paul then briefed Ken Frost/GSFC and his troops about our Station Keeping Platform study results. Ken Frost has General Electric working on some specific issues also, and suggested that we talk to them to coordinate the work.

Next, Paul headed to Reston to brief the PE&A folks on the SKP and Accommodation Strategies tasks. Rob, who attended the meeting, commented that the presentations went very well and were very well received. Paul noted that the SKP's contamination section is a "landmark piece of work" in itself, and that it should be presented to the EWG.

Paul will be getting copies of all of the handouts from the EWG integrated working session. As the stack is about two feet tall, he will only hold onto it for a short while. Anyone interested in

looking through it should call Paul right away. Paul noted that the EWG has meetings scheduled quite a ways into the future; they seem to be clear on their goals and sticking to schedule.

Bill Cirillo/LaRC asked if JPL would be interested in doing some libration point work for Mars initiatives. Brian Pritchard/LaRC also suggested some additional trajectory studies related to the manned Mars initiative. JPL options for supporting these requests will be discussed with Section 312.

Govind Deshpande

Govind attended a RADOME simulation model task review at PE&A last week. Govind presented an information system architecture, which will be coordinated with the work being done by SSR. The review went well; more funding for the rest of the year is likely.

Randy Cassingham

The space station has a new official logo, replacing the "what's that?" logo that has been around for about two years. According to headquarters, "the logo depicts a stylized version of the Freedom program's manned base featuring two of its most dominant features -- the pressurized modules where space station crew members will work and live and the large solar panels. The circular shape in the background represents both the Earth and other planets."

For those who haven't heard, Lori Paul was in a car accident late last month and is in the hospital for facial surgery. Lori's secretary, Rachael Porter, is taking up a "get well soon" collection. Anyone who would like to contribute should contact Rachael at x4-1085 (office: 301-285H).



The Space Station Program's new logo

Upcoming Meetings

- May TBD (mid-month): Utilization and Operations Information Planning Group meeting at MSFC.
Leigh Rosenberg to attend.
- May 15-18: OSSA Science Utilization Management/Mission Management Director's Review meeting in Charlottesville NC. Hershal Fitzhugh and Bob White attending.
- May 16-? (tentative): Attached Payloads and Platforms Accommodations Working Group meeting at MSFC. Ed Wong to attend (?).
- May 16-17: Operations Management System working group meeting at MSFC.
- May 16-17: Pressurized Element Payload Working Group meeting at MSFC.
- May 16-18: EWG meeting at LaRC. Paul Henry and Kent Volkmer to attend.
- May 17: American Institute of Aeronautics and Astronautics orbital debris meeting in Huntsville.
Steve Gabriel and/or Neil Devine likely to attend.
- May 28-29: 8th International Space Development Conference in Chicago. Rob Staehle to attend, and will present case study work.
- May 31-June 1: "Pathway to the Planets" symposium sponsored by Code Z in Washington DC.
Rob Staehle to attend.
- June 2: Distributed Operations Concept Development (formerly Requirements Refinement) task review at PE&A. Leigh Rosenberg and Jerry Olivieri to attend.
- June 6, 7 or 8: EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation. Paul Henry and several others to attend.
- June 13-15: User Information Systems Working Group meeting in Huntington Beach.
- June 20-22: AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, MAY 4

"SCIENCE PAYLOAD LAUNCH DELAYS COST NASA \$1 BILLION"

"It cost NASA about \$1 billion to store science mission spacecraft and maintain scientific program teams during launch delays that resulted from the Challenger explosion, an official of the agency said yesterday."

The DAILY reports Lennard Fisk, associate administrator for space science and applications, told the Senate Appropriations HUD-Independent agencies subcommittee yesterday that scheduling has been the main cause of cost overruns in scientific programs. He said NASA spent about \$8 million a month to store and maintain the Hubble Space Telescope in a clean room at Lockheed Corp. facilities in California. It is currently scheduled for launch in December.

The story reports outgoing Associate Deputy Administrator Noel Hinners told the subcommittee NASA is losing the institutional and technical expertise of retiring and resigning employees and cannot hire replacements fast enough. "This is the first budget in history where we do not have the money to fund the people we are authorized to have," he said.

The DAILY reports acting Administrator Dale Myers told the subcommittee that NASA next week will send Congress a plan detailing how it would absorb a \$575 million cut that includes \$400 million for the Space Station program. He said the report also will describe the effect of cuts on total program costs.

The story reports Myers said the Space Station program could absorb a \$100 million cut with no more than delays, but reductions of \$600 million to \$800 million might lead to cancellation. The FY90 request totals \$2.1 billion.

WASHINGTON TIMES, MAY 4

"MARIETTA PRESENTS ROBOTIC REPARIMAN" By: Pam McClintock

"Martin Marietta Corp. unveiled a mock-up of a space robot yesterday that NASA will use to help assemble and maintain its planned space station."

The paper reports the full-scale model of the 6-foot robot, called the flight telerobotic servicer, is one of many exhibits on display this week at the annual meeting of the American Institute of Aeronautics and Astronautics in Crystal City, Va.

The paper reports the robot is a crucial part of the space station project because it will reduce the amount of time astronauts need to spend outside the station. The robot is scheduled to take two demonstration flights aboard the space shuttle in 1991 and 1993. It will then be sent into permanent orbit with the space station.

AVIATION WEEK AND SPACE TECHNOLOGY, MAY 8

"NASA TO SEEK SPACE STATION TERMINATION IF BUDGET REDUCTIONS ARE TOO SEVERE" By Theresa Foley

"NASA will recommend that President Bush cancel the space station project if Congress orders a cut of \$600-800 million or more to the agency's Fiscal 1990 request, acting NASA Administrator Dale D. Myers said".

Senator Barbara Mikulski (D-Md.) is quoted by AV WEEK as saying that both the House and Senate Budget Committees have ordered about a \$1 billion cut in NASA's allocation. And Senator Jake Garn said, "Unless we change it, there will be no station."

The magazine says Mikulski's subcommittee will get an allocation from the full committee which will then be divided between NASA, veterans, housing and environmental programs. They are all funded in the same appropriations bill. According to the story, at last week's hearing Mikulski said she would fight to get as much money for NASA as possible, but that the subcommittee had to be ready to trim the proposed \$13.2 billion NASA budget.

AV WEEK adds that "NASA will be crippled in future weeks, as the budget battle heats up, because many members of its senior management team will be serving on an acting basis only".

The story noted that the confirmation hearing for Rear Admiral Richard Truly will not be held until June of July, but Truly will assume the post of administrator May 15 as a result of higher-ranking NASA officials' resignations.

The story also noted other issues that came up in the Senate hearing.....

* The lack of USAF and NASA cooperation on NASA's request to use the Titan 4 rocket. Senator Garn accused the Air Force of "wanting their own little space empire".

* The Space Station crew emergency rescue vehicle was questioned by Sen. Garn.

* Truly said the Space Shuttle flight budget cannot stand any further reductions.

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311.5-145

15 May 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 15 May 1989

PRESENT: Rob Staehle, Randy Cassingham, George Goranson, David Rathbun, Kent Volkmer, Richard Grumm, Marvin Moss, Paul Henry, Govind Deshpande, Tom Handley

Next Meeting: 22 May 1989 at 10:30 in 301-271

Rob Staehle

Rob and Won-Kyu Rhim/355 were interviewed by KCET (Channel 28) for a documentary that will air in July. The half-hour episode, part of a series, focuses on the space station and politics.

Thomas Moser, acting associate administrator for the Space Station Freedom program, left NASA as of Saturday. Apparently, the most senior space station person left is Dan Herman, chief engineer.

The Code E attached payload announcement of opportunity has been slipped from May 30 to June 22.

A rewritten letter Rob originally drafted for James Odom to Richard Truly regarding the importance to the space station of the Long Duration Exposure Facility's retrieval has been signed. It was probably one of his last official acts before he left. Randy Liang/355 and George Goranson helped in preparing the letter.

Kudos to Paul Henry -- he received a letter from Peter Banks, chairman of the Space and Earth Sciences Advisory Committee Task Force on Scientific Use of Space Station, and now of the Space, Telecommunications and Radioscience Laboratory at Stanford University. Banks had some favorable comments on last year's case study, *Solar System Exploration Mission Staging*. Banks said that while orbital staging has always been an important concept for advanced station planning, "up until your report I had found more rhetoric than technical discussion of the situation. The analysis for a possible Mars mission provided by your team at JPL was very enlightening." He also brought up some points about the safety of on-orbit propellant handling.

Al Pappano/FPO is interested in our Station Keeping Platform work and wants to see the results. He has good contacts with the Code E discipline divisions and may promote the SKP with them.

Randy Cassingham

As a result of Ray Tanner's recently completed technical audit, there is talk about quite a few design changes. The most notable is the switch from photovoltaic power to mostly solar dynamic power. Information is attached (see last item in "Daily News in Brief" excepts below).

David Rathbun

David and his group have a lot of questions after reading Code E's document, OSSA *Assessment of Microgravity Environments*. The numbers in the report are a factor of 4 to 10 higher than the numbers he has come up with -- they are either using a different method of generating the numbers or are being very conservative. He will be contacting the reports authors to try to work the discrepancy out. (The report was written under contract by BDM personnel.)

Tom Handley

A definitive set of comments on the high data rate report have been received from Reston and incorporated, and a new executive summary will be going out this week.

The high rate science data task/part 2 has been moved to SE&I. However, PE&A will be responsible for an end-to-end information system architecture analysis, which Tom will be doing. It will cover ground systems from the TDRSS gateway. Tom will be meeting with Bob Vuolo on Tuesday to go over the plan.

PE&A asked Tom to present his high data rate results to the User Information System Working Group meeting in Huntington Beach June 13-15.

Paul Henry

Paul will be attending the Evolution Working Group meeting at Langley starting tomorrow. They hope to come up with preliminary reference configurations for R&D node and transportation node stations. He will also be presenting an overview of the contamination results done for the SKP study. The EWG may be writing a requirement to mitigate the contamination effects of a shuttle visit (specifically the long-term buildup of propellant residue) to the station. Another contamination problem may be from the ammonia loop for thermal control at the station. The current estimate is that about three pounds of ammonia might be lost per day. Rob commented that with 16 sunrises/sunsets per day for five to ten years may cause leak problems with couplings. Has this been looked into?

Paul and Section 312 have worked out a proposal to present to Brian Pritchard/LaRC to look at some specific trajectory problems. Work will start before the end of the fiscal year, but difficulty in getting information from Code Z could keep the pace slow. The task would look at four main areas:

- A quick look at departures on high declination asymptotes
- Study of the approach declination and entry velocity at Mars for varying Earth departures
- Study of return (Earth) approach declinations
- Study of departure from Earth-Moon libration points (and perhaps the propellant required to get to the L-points to begin with).

The work would be in addition to continuing work for Code ST.

Govind Deshpande

Govind and Tom Handley will meet to discuss the relationship between their respective information system architecture studies.

Upcoming Meetings

May TBD (mid-month): Utilization and Operations Information Planning Group meeting at MSFC.
Leigh Rosenberg to attend.

May 15-18: OSSA Science Utilization Management/Mission Management Director's Review meeting in Charlottesville NC. Hershal Fitzhugh and Bob White attending.

May 16-17: Operations Management System working group meeting at MSFC.

May 16-18: EWG meeting at LaRC. Paul Henry and Kent Volkmer to attend.

May 17: American Institute of Aeronautics and Astronautics orbital debris meeting in Huntsville.
Steve Gabriel and/or Neil Devine likely to attend.

May 28-29: 8th International Space Development Conference in Chicago. Rob Staehle to attend, and will present case study work.

May 31-June 1: "Pathway to the Planets" symposium sponsored by Code Z in Washington DC.
Rob Staehle to attend.

June 2: Distributed Operations Concept Development (formerly Requirements Refinement) task review at PE&A. Leigh Rosenberg and Jerry Olivieri to attend.

June 6, 7 or 8: EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation. Paul Henry and several others to attend.

June 13-15: User Information Systems Working Group meeting in Huntington Beach. Tom Handley to attend.

June 20-22: AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, MAY 10 "NASA SETS SPACE STATION COST AT \$10.5 BILLION THROUGH FY92"

"The Space Station will cost \$10.5 billion through fiscal year 1992, more than two years before the first modules are placed in orbit, NASA said in its second annual capital development plan submitted to Congress yesterday."

The DAILY reports the plan includes costs not directly charged to the Space Station program, including space flight, control and data communications, Shuttle flights, construction of facilities and salaries. NASA reported that the total program cost declined by \$296 million over last year's plan due to program stretchouts and delays and by relying on private financing for some parts of the program. The plan assumes that NASA will receive the full \$13.3 billion requested for FY90, including \$2.01 billion sought for the Space Station program.

The paper reports NASA has budgeted \$4 million each for space flight, control and data communications and for space and ground network, communications and data systems; \$42 million for construction of facilities and \$133 million for research and program management.

Through FY92, projections are \$9.479 billion in direct Space Station program funding; \$121 million for space transportation capability development; \$101 million for space flight, control and data communications; \$15 million for communications and data systems; \$134 million for construction of facilities, and \$666 million for research and program management.

CHRISTIAN SCIENCE MONITOR, MAY 9 "FULL-SPEED FUNDS FOR SPACE STATION" (MONITOR Editorial)

"Once again, the United States is playing a dangerous game with its manned spaceflight effort.

It's called budget stretchout. To play this game, Congress cuts a program's annual budget below the originally planned amount needed to stick with the program's authorized design and schedule. But it doesn't cut the budget enough to kill the program outright.

That's the kind of false economy that helped inflate the cost of the space shuttle and led to technical compromises that a presidential commission called a factor in the Challenger disaster. Now Congress is threatening to do the same thing to the space station."

The MONITOR says "while outright cancellation seems unlikely," Congress may trim several hundred million from Freedom's 1990 budget. It says NASA could absorb such a cut and continue the Freedom program. "But the stretchout game would begin."

The paper says this time "there's more at stake than just a NASA program," because Freedom is an international endeavor.

The editorial says "If Freedom is substantially delayed and replanned -- let alone canceled -- the name of the U.S. will be mud in the international space community."

The MONITOR concludes: "Congress should refrain from tinkering with the Freedom program. For once, the U.S. should stick with a program plan and bring it in on time and within its originally authorized cost."

WASHINGTON TIMES, MAY 12

"NASA SAYS NYET TO SOVIET OFFER TO LAUNCH THE U.S. SPACE STATION"

"Glasnost is reaching for the final frontier: the stars. To show its commitment to the commercialization of space, the Soviet Union is proposing that NASA pay to use Soviet rockets to launch the U.S. space station Freedom."

The paper reports the offer officially will be made within the next two weeks in a letter to NASA by Space Commerce Corp., a Texas firm that has signed an exclusive agreement to market Soviet space services. Space Commerce Corp. also will begin lobbying U.S. companies to consider launching their satellites on Soviet rockets or to send experiments up to the Soviet Space Station Mir.

"We are going to wish them well, but we are not in the same business. We are aware of their interest to launch the space station. At this point, we have no comment," said Don Miller, senior Soviet Desk officer at NASA. Miller also said there is a State Department policy that would preclude such activity.

PHILADELPHIA INQUIRER, MAY 11

"LOST IN SPACE? CONTRACTOR SUPPORTS SPACE STATION WITH ADS"

"Two years ago, McDonnell Douglas Corp. tried to boost public support for America's fledgling space station program -- a project potentially worth \$1 billion in business for the aerospace company -- in a television advertising campaign that some people thought came on too strong."

The paper says the commercial, dubbed "Reds" by McDonnell Douglas publicists, showed a Soviet space station drifting by as people are heard laughing. The letters CCCP and a red star are clearly visible on the station's outer surface. As the spacecraft passed out of view, a message appeared on the screen: "Shouldn't We Be There, Too?"

The story says ABC, CBS and NBC refused to air the commercial, calling it too controversial. It did run, however, for several months on selected local TV stations.

The paper says this week, McDonnell Douglas is back with a new TV ad campaign, called the "Astro Baby," aimed at bolstering the space station program.

The 30 second ad shows a blonde, blue-eyed little girl donning a space suit and helmet and looking skyward as the space station floats by. The song "Twinkle, Twinkle, Little Star" plays in the background. A female narrator says: "There's a big world waiting out there, little one. But if you go to school and learn reading, writing, history, art, science and everything else you can, who knows how far you'll go?" After a short pause, a man's voice says: "For an educated America, even the sky's not the limit."

The paper reports the "Astro Baby" ad began airing Monday on Cable News Network. It will begin showing on the major networks on Sunday on morning public affairs programs.

The paper reports Tom Williams, a spokesman for McDonnell Douglas Space Systems said the purpose of the commercial is "to create a strong awareness of education and manned space flight."

AVIATION WEEK & SPACE TECHNOLOGY, MAY 15

"NASA CONSIDERS STATION DESIGN CHANGES, AMID FUNDING AND CANCELLATION THREATS" By: Craig Covault

NASA space station officials are proposing to change substantially the way the massive international facility would be built and electrically powered in orbit."

AV WEEK reports under the proposal, 50 ft. solar collector dishes and turbines would be used to generate most of the station's 75 kw. electrical power, starting early in flight operations. This contrasts with the current plan to carry four pairs of solar arrays, each spanning 200 ft.

The magazine says with the dishes, the station would lose its large, winged appearance and the bright, silver, circular collectors would become the dominant features. Besides altering the appearance of the facility, project engineers believe the recommended change to the electrical power system could save \$2 billion in lifecycle costs. It also could reduce significantly the facility's need for space shuttle resupply missions.

AV WEEK reports the plan, to be reviewed May 19 by the NASA Management Council, is part of more than 200 recommended changes in station engineering and plans resulting from a technical audit just completed by the project office.

Space Station Utilization Team Weekly Meeting Minutes

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Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
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Grumm, Richard	355	183-401	4-9267	RGrumm	
Gulizia, Bill	356	171-300	4-3627		
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
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Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
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Rathbun, David	343	198-326	4-8626		
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Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
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Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
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Turner, Dick	313	233-306	4-5643		Dick.Turner
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Varsi, Giulio	880	180-701	4-2992	Varsi	
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Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		ECWong
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 93) / Printed 16 May 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-157

22 May 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 22 May 1989

PRESENT: Rob Staehle, Randy Cassingham, George Goranson, Dick Turner, Kent Volkmer, Leigh Rosenberg, Paul Henry, John Bosley, Dick Levin

Next Meeting: 5 June 1989 at 10:30 in 301-271

Rob Staehle

Richard Truly appointed Dr. William Lenoir to be associate administrator for space station, and directed him to develop a plan for consolidating the Space Flight and Space Station offices. In addition, Truly appointed Richard Kohrs, currently a "top shuttle official" at JSC, as the director, Space Station Program; Ray Tanner will become deputy, Space Station *Freedom* Program and Operations. There is an intent to make the station management structure similar to that employed for the Shuttle. It is not clear what this means for the role of Level II in Reston.

Neil Divine/521 is being interviewed today by KNBC/Channel 4 regarding orbital debris. This is likely due to interest in JPL letting a contract for a new radar system to track debris.

Bob White advises that Code EM will request continued support on evolutionary payload requirements ("staging of OSSA payloads post-assembly complete phase, large structure assembly, etc."), as well as Science Utilization Management support. EM will *not* continue to support our data architecture work – instead, Code EC is being asked to expand their role.

An OSSA attached payload workshop, analogous to the payload workshop held last year in Guntersville, will be held in August, according to Mark Sistilli/EM. It will have two main purposes: to educate the OSSA SUM centers and Code S on the newly selected flight and concept study payload requirements (both flight and ground segments) as best as the selectees can identify, and to educate the payload selectees on the current state of attached payload accommodations, especially those issue areas that Code S needs to define prior to the preliminary design review.

Some 726-xxxx accounts may be temporarily closed. If any charges bounce, they should be forced through. Call Lloyd Day/PE&A if you have continued problems. Code ST accounts (510-xxxx) should be open again by next week, but this increment of funding will only cover through July, when we get to do it all over again.

Bob Easter/PE&A plans to provide the requested six weeks' carryover (based on average weekly SRM spending plans for August and September) for those PE&A-funded tasks which were not planned for completion prior to the end of the fiscal year. Note that this does *not* mean that deliverables scheduled for this FY can be slipped to FY90.

Dick Scott/514 is on a "Special Investigation Group" regarding LDEF retrieval. He was referred to George Goranson, Bill Bachman and Randy Liang for information.

Since several of us correspond with SSU Level II (or is it SSU-1?) with some frequency, Rob passes on the following NASAmail message, sent to the Attached Payloads and Platforms Working

Group from MUHRAN: "Effective immediately the Mail Code for Level-II SSU is changed from SSU to SSU-1."

Randy Cassingham

A copy of the *Space Station Freedom Media Handbook*, a concise overview of the Program, was sent out with last week's minutes (Note to Reston folks: Randy assumed that Reston people received copies from HQ. If not, contact him for copies). JPL/Pasadena received 1550 copies of the *Handbook*, so please let Randy know if you can use more.

A new space station newsletter (called "Station Break") is being published by Code S. The first issue was recently released. Randy is trying to find out how the distribution system works; he will try to make sure that all on the minutes distribution list are also on the newsletter list. The newsletter appears to be slanted toward non-technical readers.

Leigh Rosenberg

Jerry Olivieri has been ill for the past several weeks, and is not expected back until sometime in June. In order to help keep work going on the Distributed Ops Concept Development (latency study) task, Dick Levin/311 will be filling in until Jerry returns. The task review scheduled for June 2 at Reston will likely be pushed back until Jerry can get back.

Leigh attended the Utilization & Ops Information Planning Group (UOIPG) meeting last week. He brought back two presentations that should be of interest to payload users: one on the SUMIT data base, the other on the UMRIS data base. Contact Leigh for copies. The UOIPG has been split into two groups: Utilization and Operations and the Information Planning Group. A prototype system for UMRIS is due on-line in one year. Leigh noted that some of the work the UOIPG is doing is far too detailed, better to be handled by the contractor. Part of the problem is that the policy and overview document has not been issued yet, but it is supposedly coming soon.

Paul Henry

Paul attended the Evolution Working Group meeting last week. The people at LaRC have done a good job of integrating the work presented at the integrated working session two weeks ago. Paul presented the contamination report that came out of the Station Keeping Platform task, and there was significant interest and many questions from the group.

Also presented at the meeting were the preliminary configurations for the R&D node and Transportation Node evolutionary stations. The R&D Node features eight modules (baseline plus two additional habitation modules, two additional lab modules, and two "pocket labs" (node-like attachments for more lab space), but no more international modules). The Transportation Node is designed for lunar base support, and features a large enclosed assembly area attached to the bottom of the dual keel.

Also at the EWG meeting, Brian Pritchard briefly presented a list of the 200+ design change issues covered in the recently completed technical audit. Some of the more noteworthy items discussed include:

- the recommendation to change from photovoltaic power generation to a solar dynamic-based system (four 18.75 kw units plus two 5 kw photovoltaic panels for a total of 85 kw). The claim is that the solar dynamic system will save more than \$2 billion in lifecycle costs, but the basis for this estimate is unclear.
- ELVs are back in favor as a discussion item for station logistics, and possible station assembly. The current plan is for 22 assembly flights before the baseline station is completed, but there is concern as to whether this is a realistic number. One possible way to reduce the burden is to drop the requirement that the station be self-sufficient (i.e., able to reboost itself without a shuttle present) until the end of the third assembly flight. The current requirement is that the station be self-sufficient starting with the first element launch.
- Venting requirements may be relaxed to allow the suits and modules to "leak" -- they will anyway -- and vent overboard.

- The station assembly checkout facilities at KSC may be cut back in favor of a "ship-n'-shoot" policy for station launch packages.
- The cupolas present a problem because of problems keeping the windows clean. Recommendations included a system for bringing them back to Earth for cleaning.

The EWG presented their current findings to Code ST management on Friday, and are presenting them to Level I Division Directors, SE&I and PE&A this week, and OSSA and the Program Director over the next few weeks.

The evolutionary studies FY90 POP call is scheduled for mid-June. A total of \$90K in additional FY89 funds will be allocated by the EWG for additional trajectory analysis by JPL. Paul is working with Bob Mitchell and Johnny Kwok to plan for the additional work.

John Bosley

John reminded the group that there will be an EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation on June 6, 7 and 8, with the 7th being the best day. Anyone wishing to attend that is not already on the list should contact Cate Heneghan/311 (x4-1272) by the end of the week to reserve a slot.

Upcoming Meetings

May 28-29: 8th International Space Development Conference in Chicago. Rob Staehle to attend, and will present case study work.

May 31-June 1: "Pathway to the Planets" symposium sponsored by Code Z in Washington DC. Rob Staehle to attend.

June 2 (tent): Distributed Operations Concept Development task review at PE&A. Leigh Rosenberg and Jerry Olivieri to attend.

June 6: Planners Meeting on the Space Station Microgravity Study at Headquarters. Dick Grumm to attend?

June 6, 7 or 8: EVA Demonstration meeting at McDonnell Douglas/Huntington Beach re: tank farm installation. Paul Henry and several others to attend.

June 13-15: User Information Systems Working Group meeting in Huntington Beach. Tom Handley to attend.

June 20-22: AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

August TBD: OSSA attached payload workshop in Washington DC.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

UNITED PRESS INTERNATIONAL, MAY 18 Gerald Nadler

"A leading Soviet space official is calling for a NASA-type space agency in his country and revealed that half the instruments on the currently unmanned Mir orbital station are inoperable."

UPI reports Vladimir Shatalov, a former cosmonaut and now chief of cosmonaut training, also told *Izvestia* newspaper Wednesday that crews have had to do considerable work to cover for Mir's deficiencies.

"For the past three years, the crews have been filling in the gaps in equipment," Shatalov said. "Many of the instruments sent up have never been fully tested. Half of the instrumentation does not work. The crews lose a lot of time on repair and technical work."

UPI reports Shatalov said the next manned mission to the Mir will depend on when one of two new promised modules will be ready to relieve crowding on the station. "It's hard to live up there in the station now because it is stuffed with equipment," he said.

UPI says in response to recent criticism of the lack of spinoffs from the Soviet space program for the country's economy, Shatalov suggested the American example be followed.

"We need to put space to use for the economy, change our priorities and establish a NASA-type organization that will count profit and losses," he said. As a name for the new organization, Shatalov suggested "The Space Agency of the Soviet Union."

HUNTSVILLE TIMES, MAY 17 "TOUGHER FIGHT EXPECTED FOR SPACE STATION FUNDS" Martin Burkey

"Former NASA space station program manager James Odom predicts 'a long hot summer' for the agency's efforts to win funding for an orbiting space station."

The paper reports Odom told the Marshall Space Flight Center Management Association that although it was difficult to find funding for the station this year, it will be even tougher next year -- but it should be "enough to keep the program going with some adjustments."

"We're not facing up to what the real deficit will be now," Odom said. "When it comes to fruition in late June or July, we will start getting honest about the budget."

The paper reports Odom said at the height of the Apollo program, NASA got 4 percent of the federal budget. Now he said it gets about 7 tenths of 1 percent. Had the percentage not gone down, Odom said, the U.S. would be flying a second generation space shuttle, the space station would be in orbit and a team would be on its way to Mars.

Odom said his top three rules of management are: "Be in charge, spend money like you've got it, and make decisions timely and don't look back."

AEROSPACE DAILY, MAY 19 "TRULY APPOINTS LENOIR; SEEKS SPACE STATION CONSOLIDATION"

"Acting NASA Administrator Richard Truly yesterday named Dr. William Lenoir to be associate administrator for Space Station and directed him to develop a plan for consolidating the Space Flight and Space Station offices."

The DAILY reports Truly said he had discussed a plan to consolidate the executive management of the Space Flight and Space Station offices with former Administrator James Fletcher and former associate administrator for Space Station James Odom over the past two years.

"We have become absolutely convinced, at some point, the executive management of these programs needs to be combined at a level lower than the administrator," Truly said. "It's never been a question of whether to do it. It's always been a question of when."

"The idea is that in order to deal with the complex interactions between transportation and Space Station we would end up with an AA that includes both of those," Truly said. "That AA would have the administrator's full support and he would also have a full time program director...for each of the programs."

The DAILY reports Truly said there is no deadline for the plan to be completed, but because of the low Shuttle flight rate, he expects to have it ready by the end of the year.

"The loss of two key senior people in the Space Station program required that that huge, complex endeavor have clear leadership within NASA," he said. "It ought to be a signal to Congress that we're willing to put our absolute first team of experienced program managers into the Space Station program because we intend to build it and fly it."

AEROSPACE DAILY, MAY 23 "NASA SHOULD HAVE BACKUP PLAN FOR SATELLITE COMMUNICATIONS"

"NASA should have a backup plan to communicate with Earth orbiting satellites before closing more ground stations and switching to the Tracking and Data Relay Satellite System, the General Accounting Office reported."

The DAILY says the report, "Space Operations: NASA's Communications Support for Earth Orbiting Spacecraft," was prepared for the House Science, Space and Technology subcommittee on space science and applications.

"According to project officials, a failure in the onboard communications system may permanently prevent a spacecraft from using TDRSS without preventing onboard instruments from continuing to conduct scientific work" the report said. "Such a mission would need continuing, long term communications coverage from ground stations to transmit its scientific results."

The DAILY reports NASA closed 13 ground stations between 1980 and 1985 and plans to close stations at Guam, Hawaii, Santiago and Ascension Island this year after the TDRS system is declared fully operational by the end of June. Several NASA spacecraft, including the Cosmic Background Explorer scheduled for launch in September, Hubble Space Telescope in December and the Upper Atmospheric Research Satellite in 1991, will relay data to NASA through TDRSS.

"We believe that NASA needs assurance that Earth-orbiting spacecraft missions will not be exposed to unreasonable risks due to the closing of the ground stations," the GAO report said.

The DAILY reports NASA plans to provide emergency backup support from the 26 meter antenna substations at three Deep Space Network sites at Goldstone, Calif.; Canberra, Australia, and Madrid, Spain, as well as from the Bermuda and Merritt Island, Fla., Ground Network stations and the ground stations at Wallops Island, Va.

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Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
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Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Das, Rahde	342	303-300	4-9736		
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
<u>Devirian, Mike</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7209</u>	<u>MDevirian</u>	
Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
<u>Fitzhugh, H.L.</u>	<u>374</u>	<u>179-206</u>	<u>4-6906</u>	<u>HFitzhugh</u>	<u>HFitzhugh</u>
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Steele, Laura	311	301-285	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		ECWong
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 94) / Printed 23 May 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-176

12 June 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 12 June 1989

PRESENT: Rob Staehle, Randy Cassingham, George Goranson, Paul Henry, Kent Volkmer, Leigh Rosenberg, Marvin Moss, Govind Deshpande, Tom Handley, John Bosley

Next Meeting: 19 June 1989 at 10:30 in 301-271

NOTE: Last week's meeting was cancelled due to travel.

Rob Staehle

Rob went to Reston last week and met with Bob Easter and several Reston task managers. Bob indicated that rough task and funding guidelines for FY90 will be sent to JPL within two weeks. Pete Lyman and Bill Lenoir (Associate AA for space station) will also be meeting soon to discuss space station. Ray Tanner has expressed interest in visiting JPL/Pasadena, and may come this summer.

On the NASA HQ personnel front, Al Diaz is now Lennard Fisk's new deputy. Sam Keller is in the number three NASA position.

Rob presented last year's space station work at the 8th International Space Development Conference in Chicago, May 28-29. This included background on CIT, LDR, TRAMAR, TES, and Optical Communications. In another presentation, he talked about departures to Mars. About 150 people attended this talk, and many good questions were asked.

Rob also attended the "Pathway to the Planets" symposium sponsored by Code Z, May 31-June 1. AA for Exploration Frank Martin presented Code Z's plans for the future; he's interested in a very focussed approach leading to specific recommendations regarding lunar and Martian exploration. Richard Truly spoke also, endorsing Martin's plans and Space Station *Freedom*.

Some scuttlebutt from the Code Z symposium: It is likely that there will be some sort of configuration change (read: smaller) to the station soon. Truly is backing away from the "cut any more from the budget and we'll be forced to cancel the space station" line so familiar from his predecessors. A \$2 Billion/year spending limit on the station is being discussed.

There has been quite a bit of discussion about the station Design Reference Missions (DRMs), which were created as scenarios to ensure the requirements in the PDRD were sufficient. PE&A, in their analysis of the DRMs, note that they all seem to require too much power and crew time. Problems with credibility have been noted as well in at least one scenario dealing with an on-board fire.

Changes are being made in the set of JPL blanket contracting companies. Those relying on contractor support should check on the continuing availability of contractor personnel employed through incumbent contracts that will not be renewed.

There is some concern about the amount of travel involved in some tasks. Please make sure travel is necessary before going. Let's be careful so that we don't have to add paperwork to the approval process. One option: a recent meeting was conducted by video teleconference (in the "VITS room", in building 230). These videocons are paid for by Lab burden, and so are "free" for the task. This may help the travel situation, especially when the meetings are brief.

There was some discussion in the meeting regarding ISDN (a communications system protocol). Adrian Hooke notes that there are still many decisions to be made regarding this issue, and the CCSDS (Coordinating Committee for Space Data Standards) structure is still being studied. In the mean time, though, the Japanese have decided to use ISDN in the Japanese Experiment Module. There is some concern that advocacy of ISDN undermines Laboratory positions taken with respect to CCSDS, though it is not clear that the two are mutually antagonistic.

New funds for Code ST tasks to take them to the end of July have arrived.

A letter from Lennard Fisk Center directors is being circulated; while stating that Marshall is not the "lead center", MSFC will be in charge of most aspects of space station science utilization management. Let's do a good job keeping the lines of communication open with our contacts at Marshall! Copies of the letter are available from Rob or Hershaw Fitzhugh.

Kudos to Paul and Randy for the extra work to get the final draft of the SKP study report out the door before its deadline. The report is being reviewed in Reston and will be published soon. It is quite large (80+ pages) and reports a lot of interesting results.

Rob has received the following documents, if anyone would like to get copies:

- *Beyond Earth's Boundaries*, the annual report of the NASA Office of Exploration. A slick, color, 51 page document discussing "human exploration of the solar system in the 21st century".
- *Science and Applications Utilization Requirements for Space Station Freedom*, a concise (34 page) document which is "intended to act as a convenient summary of OSSA requirements for use by all parties interested in OSSA's plans for Space Station Freedom."
- The *Operations Concept Document, Space Station Freedom Program, Work Package 3*, prepared document for GSFC by GE. The document is "intended to provide an early view of the WP-3 operational aspects of the Space Station Freedom Program."

George Goranson

George has finished his review for Dana Brewer/SSU of the electromagnetic interference requirements; his report will be on the way to Al Holt/SSU by Wednesday.

Paul Henry

Paul attended the Attached Payload and Platforms Working Group meeting last week at GSFC. The APPWG is being absorbed by UDAWG -- the (User or Utilization?) Design and Accommodations Working Group. At the meeting, Jerry Millard's contamination presentation (work performed for the SKP study) was very well received. Much discussion resulted -- it really woke people up to the problem. Ed Wong talked about pointing issues, which was somewhat controversial (the WP 3 PPS people were a bit defensive about it). Paul presented his attached payload accommodation strategies (especially SKP) last. Since he was last, the discussion was open ended, and went on for two hours; there was a very enthusiastic response to the SKP concept -- the Canadian representative was one definite convert. Dave Carter/SSU thought the accommodation strategies, including the SKP concept, should be presented to Bob Clarke/SSU; Dave Hixon and Bob Easter will discuss how this should be handled. Carter also presented a list of the top 10 issues for attached payload/platform accommodations:

- 1) Add the three in-progress CRs to PDRD by end of June.
- 2) Resolve seven prime locations for APAE major payloads.
- 3) Develop a strategy to deal with payload servicing.

- 4) Justify the case for $\pm 5^\circ$ LVLH attitude requirement.
- 5) Characterize contamination problem for attached payloads.
- 6) Develop an overall attached payload pointing strategy and, if appropriate, eliminate active cooling across the gimbals.
- 7) Unpressurized storage.
- 8) Update the candidate US payload list for JEM Exposed Facility opportunities.
- 9) Update and complete crew support work station requirements.
- 10) Determine commonality between small and rapid response and Japanese Experiment Module Exposed Facility payloads.

The same presentations were given in Reston the previous day. It was hoped that interested parties from Level II would attend. While only JPLers (Reston and Pasadena) attended, it was a useful and free-wheeling exchange.

Kent Volkmer

Kent will be attending the Combined Robotics and Collision Avoidance working groups, June 21-22 in Reston.

John Bosley

John and several others attended a demonstration of cooperative work between an "astronaut" (diver designated as an EVA astronaut) and a teleoperated robot in the neutral buoyancy tank at McDonnell Douglass in Huntington Beach last week. The work is at a fairly crude level -- the robot is rented from Ocean Systems, and has not been modified (probably since it will go back to work "on an oil platform somewhere" when they're through with it), so that its end effector is a very simple gripper, for example. Its task was to move cylindrical tanks from one rack to another after disconnecting two fluid lines. Utility divers were on hand to assist the robot (it was "no fair" for the "astronaut" to help) since the tanks were a bit ungainly, the robot did not have the proper gripper for the tanks' handholds (they were designed for human hands), and the rack spaces had tight fits. Also, while there was a TV camera on the robot's wrist for use by the teleoperator, it was angled in such a way that when the robot gripped something, you couldn't see what was being gripped. It also had a pretty tight field of view. A video was being made of the test; John has asked for a copy for those who didn't make it to the scene. Even though the work was crude, the test did give some idea of the similarities and differences between 1g neutral buoyancy and what it is like to work in 0g vacuum.

John met with representatives of groups (including contractors) at other centers to discuss different approaches to defining EVA crew and robot primitives (the basic units for describing manipulative tasks). Some commonalities were agreed upon, but the purposes each group has for describing EVA and robotic tasks are different enough that complete uniformity would not be especially helpful. John will be preparing a memo summarizing the meeting and action items if anyone is interested in details. This will include JPL's first cut at a "maximally common" list of action primitives.

Marvin Moss

The first draft of the availability strawman document has gone out to Level II including ESA and NASDA for comments. Comments are expected by July, then the document will be issued to Level III for comments.

Tom Handley

EEIS Architecture: their study has found no good reason to close the TDRSS "Zone of Exclusion" over the Indian ocean (where the Shuttle/Station will be out of communication for 6-12 minutes per orbit), but the Advanced TDRSS system, which is now in the definition stage, will probably close it anyway.

Tom will be presenting at the User Information Systems Working Group meeting Tuesday through Thursday in Huntington Beach.

Reston will be publishing Tom's final high data rate report this week.

Upcoming Meetings

- June 13-15: User Information Systems Working Group meeting in Huntington Beach. Tom Handley to attend.
- June 20-22: AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia. No one yet slated to attend.
- June 21-22: Combined Robotics and Collision Avoidance working groups in Reston. Kent Volkmer to attend.
- June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.
- June 30: Image Processing workshop in Florida. Tom Handley will attend to see a new 3 gigabit-per-second optical disk system.
- July 10: ?? meeting at JSC. Tom Handley will present results of his Information System Architecture work.
- July 12-13: UOIPG meeting at MSFC. Tom Handley to attend.
- August TBD: OSSA attached payload workshop in Washington DC.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AVIATION WEEK & SPACE TECHNOLOGY, MAY 29

"NASA SPACE STATION FACES SCALE-DOWN AS BUDGET, TECHNICAL REALITIES EMERGE" Therese Foley

"Unrelieved budget threats and doubts about whether the space shuttle could launch the station as currently designed are forcing NASA's new management team to consider once again down scaling the system."

AV WEEK reports many NASA and industry officials expect the station to be scaled back during the coming months. "Technical issues that have lingered for years are compounding the station's budget trouble." The magazine says several of the issues have resurfaced, renewing "long-standing" concerns about the station's design.

"I don't expect to see anyone throw out the design altogether, but I would not be surprised to see changes made," Samuel Keller, NASA's deputy associate administrator, said. "In any big system, there are compromises that can be made. I would guess that down scaling will be done."

AV WEEK reports Ray Tanner, station program director, said his staff is not working with scaled-down configurations or planning to defer station elements to save money. He refuted assertions by other NASA and industry officials that the current station design is not fully compatible with the space shuttle. He conceded that any congressional decision not to fund the station fully could force a reduction in size. "I'm not working a down-scaled configuration. That is not a done deal," Tanner said.

The story reports Tanner said repackaging of the space station into smaller sections for launch also may be required. Tanner said this is a "peripheral issue" that is not driving the station to a design change.

HUNTSVILLE TIMES, MAY 26

"THOMPSON SAYS SPACE STATION MAY NEED TRIMMING TO FIT' CUTS"

"Federal budget realities may force NASA to scale back its present space station design and ask industry to pay for an unmanned space shuttle to carry it in, Marshall Space Flight Center Director J.R. Thompson said Thursday."

The paper reports Thompson said the 1990 NASA budget request is \$13.3 billion, but the agency will probably get \$12.5 billion to \$12.7 billion. He said Space Station is seeking about \$2 billion in 1990, but Congress is asking what NASA could do with \$1.5 or \$1.6 billion.

"We're going to have to do perhaps some scaling down, some streamlining," Thompson said. "Some of those bricks are going to have to be taken off or deferred to the out years."

The paper reports Thompson said Space Station designers might start by eliminating several of the station modules' observation towers and windows that add to the cost of maintenance, as well as giving up a degree of more costly automated "housekeeping and experiment hardware" now envisioned.

"We were in the position of trying to develop the world's greatest space station," Thompson said. "Now it's time to transfer the viewgraphs into hardware."

The paper reports Thompson suggested the Shuttle-C, an unmanned shuttle that would use the external tank and boosters and replace the current orbiter with a cylindrical cargo module, may be a prime candidate for private industry to produce.

"It's not the kind of program that really needs a NASA," Thompson said. "It's a go-do program. No new technology's required. I see minimum NASA involvement in development and fabrication."

The paper reports Thompson said that NASA would have to underwrite the project by buying a certain number of flights, and sharing the liability and risk for the program.

AEROSPACE DAILY, JUNE 2

"LDEF, IF RECOVERED, PROMISES WEALTH OF SPACE MATERIALS DATA"

"The Long Duration Exposure Facility will provide 'priceless' data on the effects of space on materials if a Shuttle crew can retrieve it in December before it re-enters the atmosphere, NASA officials said yesterday."

The DAILY reports LDEF, carrying more than 50 scientific and technological experiments, including 12 million tomato seeds, was deployed in April 1984 during the STS-13 Shuttle mission. NASA planned to retrieve it in February 1985, but postponed the mission for a higher priority payload and the Challenger accident occurred before the mission could be rescheduled.

The story says December's retrieval date is crucial because LDEF has dropped from its initial altitude to 225 nautical miles. Increasing atmospheric drag is expected to pull it down to 160 n.m. by December. The spacecraft is expected to remain stable down to about 100 n.m.

"The situation is quite serious," said John Smith, deputy director of NASA's flight projects division. "If we don't get it back it's not going to come in and our ability to predict when it's going to come in is not that good."

The DAILY reports NASA and Defense Department officials hope data on the effects of radiation, atomic oxygen and micrometeorites will offer insights into future use of materials in space. At 250 nautical miles--the same altitude planned for the Space Station--LDEF has also flown through free oxygen atoms. "It's a highly reactive chemical" that attacks resins in composites Smith said. "It changes the characteristics of the material. Without this knowledge, you could make design choices for (space based structures) that you're going to have up there for a long time which could end up being a terrible choice because the life of the materials or the structure you put up wouldn't be what you think it would be," Smith said. "If you get this information, you've got knowledge you can use and perhaps design things for much longer effective lives and avoid making some really stupid mistakes."

AEROSPACE DAILY, JUNE 9

"HARSHFIELD TO HEAD SPACE FLIGHT/SPACE STATION INTEGRATION OFFICE"

"Astronaut Henry Hartsfield was named director of the Space Flight/Space Station Integration Office, replacing astronaut Robert Parker, who returned to Johnson Space Center to begin training for his mission specialist assignment on Shuttle mission STS-35, scheduled for launch in the spring of 1990."

The DAILY reports the office was established in 1987 to aid integration of the Space Station and its requirements into the Space Transportation System. The office coordinates the exchange of information between the two programs and serves as a forum for resolving technical and programmatic issues.

Space Station Utilization Team Weekly Meeting Minutes

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Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Steele, Laura	311	301-285	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wong, Edward	343	198-326	4-3053		ECWong
Wright, Frank	740	183-335	4-5690	FWright	FWright

For additions or changes to this list, contact Randy Cassingham

(total 96) / Printed 14 June 1989

TEC/Gen/Off	NA/SA/Gen	Phone	Mail Stop	Sec
18		385-4	900 005	408
		414-4	874-102	520
	WMAWMA	988-4	758-251	520
	WMAWMA	482-4	758-801	520
		408-4	522-001	520
		AT&T	514-102	520
		758-4	880-100	520
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For addition of privileges to this list, consult <http://www.csail.mit.edu>

311.5-185

19 June 1989

TO: Distribution

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 19 June 1989

PRESENT: Rob Staehle, Randy Cassingham, Edward Wong, Paul Henry, David Rathbun, Kent Volkmer, George Goranson, Tom Handley, Marvin Moss, Jeff L. Smith, Sima Lisman

Next Meeting: 26 June 1989 at 10:30 in 301-271

Rob Staehle

Rob will be giving a talk to a teacher's workshop about the space station and Mars expeditions in Von Karman this afternoon. JPL is having a special two week conference for teachers who have a special interest in space.

Hershaw Fitzhugh reports that BDM (a contractor) has delivered a document on a payload classification scheme to Code EM -- something we gave a lot of input to. Unfortunately, the document turned out to be pretty weak. The Science Utilization Management Team will be reworking it with help from JPL. Fitz will discuss JPL's new work on the subject with Kristan Lattu.

Lloyd Day/PE&A has advised that 726-21xxx accounts have been renumbered to 726-22xxx accounts. Task managers should check with their section administrative assistants to see what paperwork is involved. New SRMs are required. Instructions will be in a forthcoming memo from Rob.

Bob Easter has advised that PE&A "guidelines" for FY90 should be here by next week.

Leigh Rosenberg delivered drafts of five reports to Remer Prince/SUU a good year ago, but he has not heard final comments. We are going to go ahead and issue them in final form. Anyone wishing to get copies should contact Leigh. The reports are:

- *Free-Flyer vs. Station Basing for a Submillimeter-Wave Telescope*
- *Payload Pointing Accommodations Assessment*
- *Impact of Payload Reliability Class on Life-Cycle Costs*
- *Space Station Payload Storage Assessment*
- *Space Station User Operations and Cost Analysis - Final Report*

It was reported last week that Rob received the document *Science and Applications Utilization Requirements for Space Station Freedom*. Rob has been asked to review it for Charles Elachi; anyone with comments they would like included should advise Rob by close-of-business Tuesday (June 20).

Kudos to Paul Henry for receiving a patent on the invention of a high-resolution two-color pyrometer he developed with Don Bickler/352 and Dan Logiurato/375.

Ed Wong

Ed introduced Sima Lisman, who will be taking his place. David Rathbun will continue to assist, but at a reduced level. Bob Laskin will also continue his role, which will ensure continuity.

The work for Phil Cressy/EM has been finished. Reston work continues; Ed will issue a status report and schedule before he moves on.

Paul Henry

The drafts of the Attached Payload Accommodation Study and SKP Accommodations reports are out to Reston and comments are coming back. Peter von Gronefeld sent it to GSFC for their feedback, which was due Friday. Paul expects the final versions to go to press this week.

Paul will be on vacation during the weeks of June 26 and July 3.

David Rathbun

David attended the Loads and Dynamics Working Group meeting last week at MSFC. The current growth and baseline configurations are supposed to have been finalized as of Friday (June 16). Considering the recently rumored changes, though, they may have a limited life.

Tom Handley

Tom attended the User Information Systems Working Group meeting in Huntington Beach last Tuesday through Thursday, where he presented the High Data Rate study. About 70 people were in attendance. People found his conclusions valid, but there seemed to be some confusion as to how to apply them since payload requirements are not yet fully defined.

One interesting item from the meeting was an apparently new Network Interface Unit on the Communications and Tracking system. It is labeled to carry "at least 10 Mbps" -- which would reduce restrictions on payloads since this is more capable than the old NIU, which was rated at 10 Mbps maximum.

A TDRSS zone of exclusion closure decision is due later this month. Andy Bennett/PE&A is keeping up with Code S and T developments on the topic. Bennett seems to agree with Tom that the ZOE does not need to be closed, but it will probably be proposed that the Advanced TDRSS should close it anyway. In the meantime, studies are underway to determine how to drive the current TDRSS system (which can handle up to 300 Mbps) at a higher rate. The target is about 450 Mbps, but it may be possible to get it as high as 600 Mbps, with the existing space segment through software changes.

Marvin Moss

The first draft of the Availability design guidelines document has been delivered to Mukand Gangal/PE&A. Disposition beyond PE&A is not clear as the responsibility for Availability has been assigned to another Level II organization.

Jeff L. Smith

Jeff is working on a report to Bob Easter detailing exactly how the distributed operations task is simulating the information system; the draft is due in two weeks, the final report three weeks later. Jeff recently became aware of a space station information system protocol simulation developed by MITRE Corp. The system it uses appears good, but slow (200 hours of run time to generate one hour of real time, which is much better than its earlier 5000:1 ratio). We may try to work with MITRE to run the protocol on our new Cray system to get some faster results. However, to do so would require an expensive SimScript compiler, for which funds have not been allocated.

Jeff met Friday with representatives from TMIS (the Space Station Technical and Management Information System) regarding his SDTM (System Design Tradeoff Model) computer

software, which will be the first custom-designed engineering system for the station to be put on TMIS. There is some question as to whether JPL will be getting any TMIS hardware -- which includes 80386-based PCs and engineering workstations -- because JPL has expressed little interest to TMIS in getting any. Jeff is trying to remedy this. JPL's TMIS contact person is now Jim Jacobson/372 who, Jeff says, is very good and knowledgeable. Sima Lisman will contact Jim regarding possible Division 34 needs for TMIS hardware and connections.

The pricing policy task has restarted. One interesting sidelight: there may be an auction (to test CalTech proposals) to sell off Spacehab mid-deck payload space on the Shuttle.

Upcoming Meetings

June 20-22: AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia. No one yet slated to attend.

June 21-22: Combined Robotics and Collision Avoidance working groups in Reston. Kent Volkmer to attend.

June 21-23: 1989 Satellite Servicing Working Group conference at JSC. Dick Turner and/or Wayne Zimmerman to attend.

June 30: Image Processing workshop in Florida. Tom Handley will attend to see a new 3 gigabit-per-second optical disk system.

July 10: ?? meeting at JSC. Tom Handley will present results of his Information System Architecture work.

July 12-13: UOIPG meeting at MSFC. Tom Handley to attend.

August TBD: OSSA attached payload workshop in Washington DC.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, JUNE 15
"NEXT MISSION TO MIR DELAYED UNTIL END OF AUGUST"

"The next manned mission to the Mir space station has been postponed until late August and two previously delayed scientific and equipment modules will be added to the station by the end of the year, a Soviet space official reported."

The DAILY reports Vladimir Shatalov, chief of the Soviet Space Training Center, also said data from the first flight of Buran would be used to modify the Soviet space shuttle before the next flight.

UNITED PRESS INTERNATIONAL, JUNE 14 William Harwood

"NASA unveiled a revised shuttle launch schedule Wednesday, formally pushing the launch of the Hubble Space Telescope into 1990 and cutting the 1989 flight schedule by one mission.

UPI reports the new shuttle schedule lists six flights in 1989, nine flights in 1990, eight in 1991, 12 in 1992, including the first flight of the new shuttle Endeavour, and 14 in 1993.

The story reports the manifest, which covers 72 missions through the fall of 1995, also lists the first three space station construction flights starting March 2, 1995.

UPI says of the 72 flights listed, only six are classified military missions, reflecting the Pentagon's push to end its reliance on the shuttle in favor of unamnned, expendable rockets.

The story says compared to the most recent previous manifest, only three upcoming flights stayed on schedule: Atlantis's October mission to launch Galileo, its February DOD flight and its 1990 flight to launch Ulysses. One flight, the December 1990 Spacelab mission, moved up two months.

UPI reports the new shuttle Endeavour is scheduled on its maiden flight Feb. 6, 1992, and the first space station construction mission is on tap for March 2, 1995.

The story reports six of the 72 flights listed have no payloads. NASA said in a statement that such "flight opportunities" were added to the manifest to provide launch slots for payloads that might be delayed. In this fashion, NASA said, major revisions to the flight schedule can be avoided.

HUNTSVILLE TIMES, JUNE 15
"THOMPSON EXPECTS TOUGH FIGHT FOR NASA BUDGET"

"NASA will soon be competing with the Veterans Administration and the office of Housing and Urban Development for its share of a \$48 billion 1990 budget."

The paper reports NASA is expected to receive between \$12.5 and \$12.7 billion, with about \$1.6 billion for the space station.

The story reports J.R. Thompson, NASA's acting deputy administrator and director of Marshall Space Flight Center, said he is optimistic that NASA will be given the authorization it needs, although he said it will not be easy.

"The way I rack up the numbers, it's going to be a tough year for NASA," Thompson said. "But with the support of the president, I think Congress will properly fund NASA, and give us a good starting run on the Space Station."

The paper reports the \$48 billion is what the House Appropriations Committee will authorize for its subcommittee that oversees spending for NASA, the VA, HUD and other independent agencies. This figure represents what the groups may be authorized to spend during fiscal 1990.

AEROSPACE DAILY, JUNE 19
"TRULY SETS SPACE STATION FUNDING, SALARIES AS TOP PRIORITIES"

"NASA Administrator-designate Richard Truly, speaking Friday at his confirmation hearing, said the fiscal 1990 Space Station budget request and higher salaries for NASA employes will be his top priorities in NASA's top job."

The DAILY reports the Senate Commerce, Science and Transportation Committee is expected to vote tomorrow on Truly's nomination and on a bill to allow Truly to circumvent a law that requires the NASA administrator to come from civilian life. Truly retires from the Navy July 1 as a vice admiral.

The story reports Truly said President Bush and Office of Management and Budget Director Richard Darman realize that NASA's budget will have to increase during the next few years to support existing programs.

AEROSPACE DAILY, JUNE 19
"TARGET SPACE STATION"

"The \$2.1 billion requested for the Space Station will need renewed presidential support if it is to be protected, says Sen. Albert Gore."

"I just hope the President is willing to come up to Capitol Hill and fight for the Space Station because many...in the House are after it," Gore told NASA Administrator-designate Richard Truly, during Truly's confirmation hearing on Friday.

WASHINGTON POST, JUNE 19
"ORBITING LITTER POSES RISK TO SPACE VENTURES" Kathy Sawyer

"When engineers and scientists discuss the vacuum of space these days, they may be yearning for a giant Hoover."

The POST reports "space has succumbed to human litter." Ground based telescopes and radars of the U.S. Space Surveillance Network report roughly 7,500 spent rocket stages, dead satellites, screwdrivers and other man-made objects orbiting the Earth at varying altitudes and in all directions.

The paper says that's only the big stuff--at least 10 centimeters or about four inches across. In May, the U.S. Space Command's Space Surveillance Network catalogued the 20,000th man-made object to be launch into Earth orbit since Sputnik went up in 1957.

The POST reports the debris has prompted NASA to add at least five tons of shielding to the design of the proposed Space Station, and they are studying other measures, such as collision avoidance maneuvering. To further protect the Space Station, NASA has asked industry to develop, at a cost of \$15 to \$20 million, a ground-based radar system that could spot a dime at an altitude of 360 miles. It would track some but not all small pieces of orbital debris that could threaten the Space Station.

Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Arnette, James	521	301-466	4-4452		
Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beer, Reinhard	322	183-301	4-4748		
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
<u>Cassingham, Randy</u>	<u>311</u>	<u>301-285</u>	<u>4-1273</u>	<u>RCassingham</u>	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Das, Rahde	342	303-300	4-9736		
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
<u>Devirian, Mike</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7209</u>	<u>MDevirian</u>	
Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	513	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
<u>Handley, Tom</u>	<u>366</u>	<u>301-440</u>	<u>4-7009</u>	<u>THandley</u>	<u>THandley</u>
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	513	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
<u>Laskin, Bob</u>	<u>343</u>	<u>198-326</u>	<u>4-5086</u>	<u>RALaskin</u>	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Levin, Dick	311	301-285	4-1253		
Li, Fuk	334	300-235	4-2849		FLi
Lisman, Sima	343	233-306	4-4022		

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Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
Millard, Jerry	354	89-1	4-2898		
Moss, Marvin	521	301-456	249-5252		
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rathbun, David	343	198-326	4-8626		
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-701	4-8581	WSchober	
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For additions or changes to this list, contact Randy Cassingham

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311.5-192

26 June 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 26 June 1989

PRESENT: Rob Staehle, Randy Cassingham, Sima Lisman, Kent Volkmer, Hershal Fitzhugh, Marvin Moss, Tom Handley, George Goranson

Next Meeting: 10 July 1989 at 10:30 in 301-271

Rob Staehle

There has been no announcement of OSSI payload selections as of Friday -- they were to be announced on Thursday. The announcement is due "in the next day or two", according to Code EM.

Rob pointed out an interesting quote from William Lenoir, the new associate administrator for Space Station. See the last item in the **Recent Space Station-related items from Code L's "Daily News in Brief"** section, below.

Lenoir has decided that the baseline power system will be based on photovoltaics, not solar dynamics. Also, he announced that the station will rely only upon current Shuttle capabilities, but will make use of the ASRM and/or Shuttle-C if and when they become available.

The FPO is considering phasing out the Univac 1100 computer. Anyone who needs this machine to stay on line for any reason should contact Rob by close-of-business Wednesday.

Rob reviewed the document *Science and Applications Utilization Requirements for Space Station Freedom* for Charles Elachi. He found it to be a very useful compendium of space station science requirements. Rob related three primary points to Elachi:

- There did not seem to be a requirement for a streamlined user interface (such as a single database for payload information so users did not have to answer multiple information requests).
- There is not enough user participation in the crew selection process.
- The accommodation issues list in the last section (IV) should be considered by JPL space station payload developers as a "red flag" list.

Rob met on Friday with Frank Schutz, Art Zigelbaum, Bob White, Dick Coffin, Dick Grumm and Merv Macmedan regarding the Consultative Committee for Space Data Standards (CCSDS) and Integrated Services Data Network (ISDN) protocols. The space station has specified CCSDS standards. Adrian Hooke/317 chairs the CCSDS committee for Architecture Specifications of Advanced Orbiting Systems Networks and Data Links (e.g., for Space Station *Freedom*). The Microgravity Containerless Processing Facility people want to use standard ISDN telephone-class equipment for experiment control to simplify hardware specifications and availability. Dick Grumm and Dick Coffin will figure out if there is a conflict inherent in this. In the meantime, a CCSDS Standards document has been issued (the "Red Book"). Rob has a copy in hand, and additional copies may be obtained from Merv Macmedan.

POP 89-2 responses are due to Level II by Thursday; George Goranson and Chuck Lifer/354 will be responding. Code ST has their own POPs due by July 17, to which several tasks will be responding -- Paul for \$150K for planetary departure work, Jeff H. Smith for \$350K for robotics work.

Bob Easter has provided preliminary guidelines to Rob, and will supply final guidelines next week for FY90 work. The preliminary numbers, however, are subject to a review by Ray Tanner next week. Totals were discussed in the meeting.

Chuck Lifer/354 negotiated with Dana Brewer/SSE to prepare a submission to her to do some "independent assessment" of toxic and reactive materials handling. John Houseman/385 will be the work lead. Brewer outlined the following areas of concern:

- A review of the PMMS in waste storage systems, commonality with JEM and Columbus, 30 year flexibility, waste limitations as they relate to user requirements, introduction of wastes into the system, and the quantity of water required for operations.
- The resource costs to users for using PMMS and Fluid Management System.
- External neutral environment requirements, such as outgassing and venting.
- Internal environment requirements such as exposure, microbiological acceptability limits, particulate limits, water quality, and radiation exposure, and the types of instruments needed to monitor these areas.

Randy Cassingham

There was a reasonably interesting article in this morning's *LA Times* regarding the Long Duration Exposure Facility and how all its data will be lost if it re-enters the atmosphere.

The SKP and Attached Payload Accommodation Strategies reports are nearing completion -- both should go to the printer this week.

Richard Beatty/PE&A attended the AIAA International Space Station *Freedom* Technical Symposium in Vienna, Virginia, and brought back a number of viewgraph packages from the presentations. By the time you read this, Randy should have them in hand if you want a copy of any of them:

Space Station Program Session

- Space Station *Freedom* Update (Ray Tanner/HQ)
- Overview of the Canadian Space Station Program (Karl Doetsch/Canadian Space Agency)
- Overview of the ESA Columbus Programme (Lanfranco Emiliani/ESA)
- Overview of the Japanese Experiment Module Program (Norio Saito/NASDA)

Space Station Design Session

- Assembly Sequence (Richard Snyder/SSPO)
- U.S. Laboratory and Habitation Modules (George Hopson/MSFC)
- Structure and Distributed Systems (Carl Shelley/JSC)
- Attached Payload Accommodations, U.S. Platform and Flight Telerobotic Servicer (Ron Browning/GSFC)
- The Mobile Servicing System (Savinder Sachdev/CSSP)
- The ESA Module: Columbus (Frank Longhurst/ESA)
- The Japanese Experiment Module (Takashi Hamazaki/NASDA)
- Tactical Operations Planning and Increment Management (Bryant Keith/SSPO)
- Training (Jenifer Eroskey/SSPO)
- User Accommodations (Richard Williams/SSPO)
- Attached Payload Accommodation Equipment and Platforms (Martin Sedlazeck/GSFC)
- Process (Robert Dorian/SSPO)

Kent Volkmer

Kent attended an interesting Level II Robotics Working Group meeting in Reston last week, and brought back some action items, such as a review copy of an Ocean Systems (a contractor robotic firm) document. Representatives from all the Centers, contractors and Partners were there.

Hershel Fitzhugh

Much concern has been raised at various operations meetings about the operations scenarios proposed by MSFC. Marshall has come out with numbers saying that only the MSFC operations center is affordable, which has raised a lot of contention at the other centers, including GSFC, ARC and JPL. In the case of JPL, MSFC assumed there was no existing infrastructure from which to build on for controlling space station payloads managed by JPL, and so argued that control from MSFC was the only affordable alternative.

Fitz attended last week's Satellite Servicing Workshop in Houston. He found it very interesting; a wide range of topics and issues were discussed (but not, unfortunately, maintainability), many of which pertain to the station. For example, in a presentation on EVA servicing tools, it was noted that specialized tools should be stored *on or near* the payload to be serviced so they don't have to be carried by the astronaut. Numerous standards and guidelines were discussed, which JPL space station attached payload designers should become familiar. The downside of the meeting: the printed handouts won't be available until September...

Tom Handley

A Data Management System CR is in the works; Tom will be providing input to it for Bob Vuolo/PE&A.

Rich Masline is attending a classified imaging workshop in Florida, which will feature a demonstration of a 3 gigabyte-per-second optical disk system.

Tom has sent the draft of the TDRSS zone of exclusion closure study to Andy Bennett/PE&A. To oversimplify, the study's position is that there is no strong payload requirement to close the ZOE.

Upcoming Meetings

June 30: Image Processing workshop in Florida. Richard Masline will attend.

July 10: ?? meeting at JSC. Tom Handley will present results of his Information System Architecture work.

July 12-13: UOIPG meeting at MSFC. Tom Handley to attend.

August TBD: OSSA attached payload workshop in Washington DC.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, JUNE 21

"SENATE PANEL APPROVES NASA BUDGET REQUEST, TRULY NOMINATION"

"The Senate Commerce, Science and Transportation Committee yesterday approved NASA's fiscal 1990 \$13.274 billion authorization request and added about \$100 million to it. It also approved the nomination of Richard Truly to be NASA administrator [and J.R. Thompson to be deputy administrator]."

The DAILY reports the committee approved the full \$2.1 billion requested for the Space Station and \$30 million for the CRAF/Cassini program. It added \$72 million for the Advanced Communications Technology Satellite program, including \$62 million for the spacecraft and \$10 million for an upper stage, and \$10 million for the Total Ozone Mapping Spectrometer. The committee also added \$25 million for the Gravity Probe B program.

AEROSPACE DAILY, JUNE 21

"NASA DECIDES AGAINST SOLAR DYNAMIC POWER FOR BASELINE STATION"

"NASA won't use solar dynamic technology to power the baseline Space Station but will continue studying it for use as the station grows, William Lenoir, associate administrator for Space Station, said yesterday."

The DAILY reports the decision to stick with photovoltaic cells to provide 75 Kw of power for the baseline station was made Tuesday as part of a technical assessment of about 200 program issues.

"Our conclusion was that while it is much further along technically than we thought it was, there is more technical risk with the solar dynamic than there is with the photovoltaic," Lenoir told reporters at a Space Station technical symposium. "There is significantly more schedule risk with the solar dynamic than there is with photovoltaic...and it requires more money in fiscal year 1990 than we have in our current request."

The DAILY reports Lenoir said the baseline design will include enough extra wiring to accommodate up to 175 Kw as new experiments and equipment are added. He said he would be "very surprised" if at least some of that increase was not supplied by a solar dynamic system.

"All along we've had plans underneath the photovoltaics to develop a viable solar dynamic concept," Lenoir said. "That's still in place." He said NASA expects to spend between \$68 million and \$70 million on solar dynamic research.

AEROSPACE DAILY, JUNE 23
"SHUTTLE IS BASELINE FOR SPACE STATION ASSEMBLY SEQUENCE"

"NASA will develop a Space Station assembly sequence using existing Space Shuttle capabilities but will consider options using the Advanced Solid Rocket Motor or Shuttle-C if they become available, the top program official said."

The DAILY reports William Lenoir, associate administrator for Space Station, told reporters Tuesday (6/20) that an initial assembly sequence will be developed by August, but a more definitive sequence will come out of the preliminary design review (PDR) in mid-1990.

The paper reports Lenoir said the baseline Shuttle using redesigned solid rocket motors would require 20 flights to assemble the Phase I Station, but would protect against possible delays in the event the ASRM or Shuttle-C are not available as planned.

"Depending on what the ASRM program has done in the intervening time (between now and the PDR) we may allow that, but I wouldn't say that every flight is going to use ASRM because every flight doesn't need the capability," he said. "We have several (payloads) that are volume limited and putting bigger rocket motors on there doesn't make the cargo bay any bigger."

The unmanned Shuttle-C "would be a significant plus to the program," but Lenoir said he would insist that each assembly flight remain compatible with the baseline Shuttle. "It might take a lot more flights, but we could get there."

The DAILY reports Lenoir also said he expects to consolidate the Space Shuttle and Space Station offices within the next two months. He said a Joint Management Council meeting at Stennis Space Center last week was the first time senior management of the Space Station and Space Flight offices had met since the consolidation plan was announced last month.

"The one thing that came out of that was the enhanced communication between the two programs even at that level," Lenoir said. "We hope to be complete with the consolidation into one office...by the end of the summer, so that before July is over I'd like to be most of the way there."

The DAILY reports Lenoir said the reorganization will likely result in merger of personnel, budget and policy offices. "We need an office level policy branch that coordinates it and maybe some implementation mechanisms in each directorate," he said. "Same thing with the budget. We want to integrate the budget planning which doesn't mean there are not budget people in Level One and Level Two in each program."

The paper reports Lenoir said as the program shifts from concept development to design and engineering, program personnel will also shift.

"The organization that is in place to get us through the concept development stage is not the right organization to get you into design, which becomes more engineering intensive," he said. "The shuffling of the organization, not at the level of (deputy program director Ray) Tanner, but at the next level down, will erase some spots and generate some spots. We will be looking at it from an agency-wide point of view...We're trying not to fill them one at a time...I want to put it all out as one house of cards and hope nobody pulls out a bottom card."

Space Station Utilization Team Weekly Meeting Minutes

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Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	513	301-460	4-4952		
Garrett, Hank	513	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
<u>Goranson, George</u>	<u>513</u>	<u>122-113</u>	<u>4-2809</u>		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
<u>Handley, Tom</u>	<u>366</u>	<u>301-440</u>	<u>4-7009</u>	<u>THandley</u>	<u>THandley</u>
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
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Henry, Paul	311	301-285	4-1257	PHenry	PHenry
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LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
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<u>Laskin, Bob</u>	<u>343</u>	<u>198-326</u>	<u>4-5086</u>	<u>RALaskin</u>	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
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Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
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Varsi, Giulio	880	180-701	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
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Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
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Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 94) / Printed 27 June 1989

311.5-202

10 July 1989

TO: Distribution
FROM: Randy Cassingham *RC*
SUBJECT: SS Utilization Team Minutes for 10 July 1989
PRESENT: Rob Staehle, Randy Cassingham, Ken McGraw, Sima Lisman, Paul Henry, Kent Volkmer, Hershal Fitzhugh, Marvin Moss, George Goranson, Kristan Lattu

Next Meeting: 17 July 1989 at 10:30 in 301-169

Notice

Due to a conference room conflicts, the Space Station Utilization Team meetings will be in Room 301-169 next week, and will move occasionally through the end of August. The following rooms have been set up:

- 301-271 July 24 and July 31
- 301-227 August 7
- August 14 - 28 are not finalized.

Rob Staehle

The announcement of OSSA assembly phase payload selections (for attached payloads) came out Thursday, June 29. JPL did quite well with six out of 27 payloads -- one flight experiment and five concept studies. Neither the Astrometric Telescope Facility nor the Circumstellar Imaging Telescope were chosen, but they may be funded for future definition work. The JPL-related payloads are:

- Exobiology Intact Capture Experiment, flight experiment. PI: Dr. Glenn C. Carle/ARC (JPL Co-I: Peter Tsou/313).
- Orbiting Stellar Interferometer, concept study. PI: Dr. Michael Shao/385.
- Precision Optical Interferometry in Space Study, concept study. PI: Dr. Robert D. Reasenberg, Smithsonian Astrophysical Observatory (JPL Co-I: ??)
- Advanced Scatterometer for Studies in Meteorology and Oceanography, concept study. PI: Dr. Michael H. Freilich/322.
- Global Positioning System Geoscience Instrument, concept study. PI: Dr. William G. Melbourne/330.
- Tropical Rain Mapping Radar, concept study. PI: Dr. Gerald R. North, Texas A&M University (JPL Co-I: Fuk Li/334).

In the continuing saga of resignations/retirements from upper NASA management, Dick Halpern/SU (and acting head of SO) is leaving, as is Ray Tanner, who until recently headed Level II as Program Director.

PE&A projects sufficient carryover funding to cover the transition to FY90. All task managers should already be talking with their Reston counterparts to discuss next year's work.

The Station Keeping Platform final report has come off the press and is in distribution. Mike Devirian has seen it and thinks it looks very good. Kudos to Paul, Randy and everyone else that contributed to the report. The contamination section is especially timely; we will probably be

releasing it as a separate report in the near future at Liz Carpenter's suggestion. Paul will designate a lead person to prepare it with Randy's help.

Al Pappano indicates that FPO will conduct a review which will include the 510- (Code ST) tasks around the end of July. Likely presenters include Paul Henry and Jeff H. Smith, with assistance from John Bosley and Kent Volkmer. Rob will probably be out of town during that time.

The funding for the Mars departure trajectory video has arrived. Paul will be arranging for assistance from 312 and Marion Inova/182.

As we requested, Remer Prince/SU has directed Leigh to publish the final reports on his Space Station User Ops & Cost Analysis task. The titles were listed in the minutes dated 19 June.

SRMs for the transition from 726-21xxx accounts to 726-22xxx accounts should be in to Rob with Division approval by next Monday, July 17.

Rob received a copy of the discussion paper *Spacelab-to-Space Station Freedom Evolution for OSSA Payloads*. Hershaw Fitzhugh will provide review comments, which are due "mid-July".

[Note added after meeting:] Bob Gershman/312 is looking for an individual familiar with the space station to write an RTOP requested by Code RS to prepare lists of evolutionary technology experiments which could be performed aboard the station, and technologies useful for the station in accommodating evolutionary experiments. Judith Ambrus/RS has requested an overguidance submission for approximately \$200k. Individuals interested in preparing the RTOP or providing inputs should contact Rob by July 17. The work will probably require frequent interface with other centers, HQ, and JPL's Technology and Applications Program Office.

Randy Cassingham

Dick Halpern has issued the go-ahead to publish the *Introduction to Utilizing Space Station Freedom*, a document that has been in-progress since October 1987.

Randy asks that Utilization Team members notify him of any meetings you will be attending, if you will be attending any meetings already listed in the minutes (see below), if you will not be going to a meeting you are slated for, etc. This list is compiled so others have the opportunity to ask you to bring something up at (or back from) meetings you attend. The list has been dwindling lately...

While you're at it, please check your name on the distribution list to make sure the information there is accurate and complete (especially NASAmail addresses). Notify Randy of any changes. Thanks.

Ken McGraw

Ken and Dick Levin will be attending a meeting in Reston on the 25th to present a proposed data systems architecture as part of their latency task. Rob suggested that they also talk to Dick Grumm regarding ISDN and the MCPF to make sure they know his views.

We do not expect to be attending the tentative IPG (one of the split groups from the UOIGP) meeting at MSFC July 26-27 since the overview document has still not been issued. Without it, we are not able to provide any meaningful comments on the details the group is trying to work out.

Sima Lisman

Sima will be heading for Reston next week with Bob Laskin to discuss work on a disturbance management tool (to predict such things as the effects of disturbances on microgravity and pointing) with Mike Urban. Rob mentioned that this sounds similar to work going on at LaRC (or at McDonnell Douglas as WP02 contractor); Sima will investigate and make sure there is no duplication of effort.

Work is almost completed on two white papers: *Space Station Attached Payload Pointing System Option Study – Pointing System Design Concept and Performance Analysis White Paper* (by Ed Wong, et. al.) and *Space Station Freedom Attached Payload Pointing Study: Pointing System Accommodation Strategy and Options* (by Ken Mann, et. al.) Anyone who wishes to be sure to be on the distribution list should contact Sima.

Paul Henry

Paul has returned tanned and full of trout from vacation, and is rarin' to go back to work. He will be concentrating on Code ST work in the next few weeks.

Andrey Sergeyevsky has generated the data for the Mars Departure Trajectory paths to be depicted in the video. Rob was concerned that we will want the work done at the same time the production people are busy with Neptune encounter videos; Paul will try to minimize conflict with that.

George Goranson

George submitted a response to the Level 2 POP 89-2 call. He will be verifying that it got into the right hands...

Kristan Lattu

Kristan will be starting some OSSA work related to station payload handling with Hershel Fitzhugh when her work with Jeff L. Smith ends in about a month.

JPL will no longer be the manager of the EOS-B (second polar-orbiting) platform; responsibility has been passed to GSFC. There is a strong rumour that it will be cancelled completely, with its payloads combined onto the already oversubscribed EOS-A platform.

Upcoming Meetings

July 12-13: User Operations Working Group (OSSA) meeting at GSFC. Rob Staehle and Mike Devirian to attend.

July TBD: Meeting re: Disturbance Management Tools at Reston (Mike Urban). Sima Lisman and Bob Laskin to attend.

July 21: Code ST review of FY 90 plans (limited to EWG members only) at MSFC. Paul Henry to attend.

July TBD: FPO review of 510- (Code ST) tasks at JPL. Paul Henry and Jeff H. Smith to present.

July 25: Meeting re: Latency study at Reston. Ken McGraw and Dick Levin to attend.

August TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, JUNE 28

"SPACE STATION OFFICIAL TANNER TO RESIGN FROM NASA"

"E. Ray Tanner, deputy director for Space Station program and operations, said yesterday he will retire from NASA effective July 15. James Sisson was named to replace him in an acting capacity by William Lenoir, associate administrator for Space Station. Sisson has been deputy program manager since November 1986.

AEROSPACE DAILY, JUNE 28

"DIET APPROVES U.S.-JAPANESE SPACE STATION ACCORD"

"A preliminary requirements review of the Japanese Experiment Module (JEM) is being conducted this week following Diet approval of an intergovernmental agreement for long term Japanese participation with the U.S. on the Space Station program."

The DAILY reports the pressurized module and exposed facility being developed by Japan will be attached to the Space Station and used for technology development, life sciences and materials processing experiments.

AVIATION WEEK & SPACE TECHNOLOGY, JUNE 26
"SPACE STATION DIRECTOR URGES EARLY LAUNCH OF FIRST ELEMENTS"

"Launch of the first elements of NASA's space station should be accelerated by a few months if possible, according to the new director of the program."

AV WEEK reports William Lenoir, associate administrator for Space Station, said he would like to accelerate the start of station assembly to send a message that the project has high priority. Lenoir said portions of the station possibly could be deferred to allow acceleration of the first components. But, he said, the idea has not been studied extensively and might not be feasible.

"I'd like to pull the first flight a bit toward us. In order to do that, we'd have to move something out," Lenoir said. He also said if funding does not reach required levels, the size of the station could change.

"It wouldn't surprise me if it's somewhat smaller and doesn't do quite as many things as well, but nonetheless meets all the requirements," he said.

AV WEEK reports Lenoir said NASA is working several different budget scenarios for the station, ranging from full funding to major cuts.

The magazine reports the Space Station was fully funded in the first congressional committee markup of NASA legislation for FY90. The Senate Commerce Committee last week approved \$13.276 billion, the amount requested by President Bush, for NASA for FY90.

AV WEEK says action must now be taken on the request by both the House and Senate appropriations committees, "both of which are likely to impose reductions to stay within overall spending ceilings."

SPACE BUSINESS NEWS, JUNE 26
"SPACE STATION THREATENED WITH GUTTING"

"The space budget House appropriators must work with is so small that several key congressional aides say there is no way around gutting the space station program next year."

"We're poised to do real violence to the civil space station," said a key congressional staffer. "I just don't know how we have the wherewithal to have a civil space program with these numbers."

Space Business News reports allocations made public last week for the House Appropriations Committee's HUD-independent agencies subcommittee which oversees NASA spending totaled \$48.050 billion in authority and \$53.124 billion in outlays for domestic discretionary spending. The paper says NASA requested \$13.3 billion, "and even considering that NASA was around 25% of the discretionary authority last year (\$42.7 billion), it wouldn't be unthinkable to expect the NASA budget to fall below \$12 billion for FY90."

The paper reports Rep. Robert Traxler forecast a \$600 million cut to NASA, but that figure assumed a larger outlay cap for his subcommittee.

Space Business News says in a figurative assessment of the potential damage to NASA of a budget cut of \$1 billion to \$1.5 billion, Stephan Kohashi, an aide to Sen. Jake Garn, said, "The ox is in the ditch and wallowing deeper." He said killing the Space Station is no longer unthinkable, but "probable" despite the "devastating" impact that would have on NASA. He said Garn will do whatever possible to keep the station alive.

WASHINGTON TIMES, JULY 11
"RESEARCH SATELLITE IN DANGER OF FALLING" Robert Sanford

"After five years in orbit around Earth, a research satellite the size of a school bus is beginning to fall, and the National Aeronautics and Space Administration finds itself in a pinch if the craft is to be retrieved."

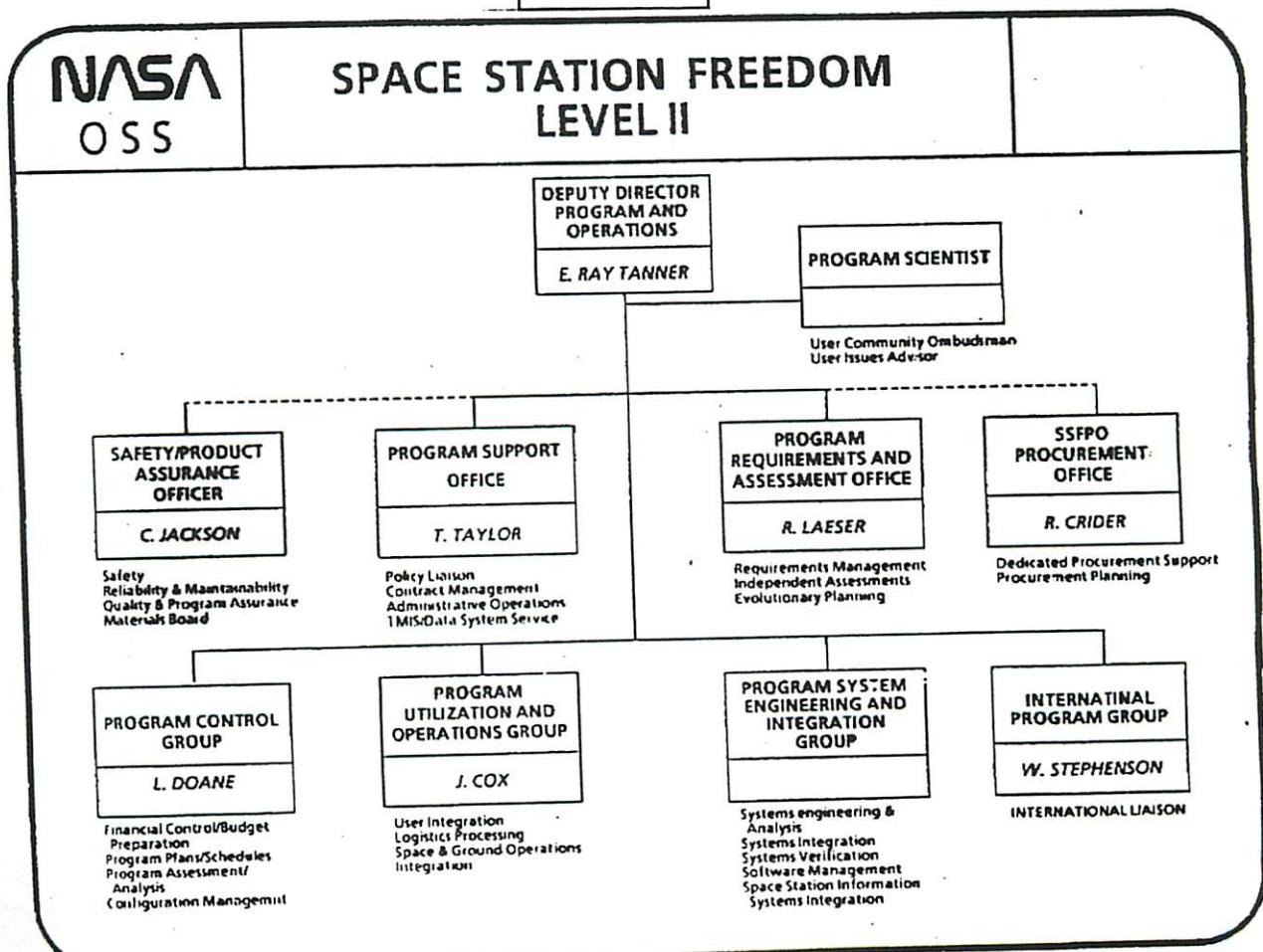
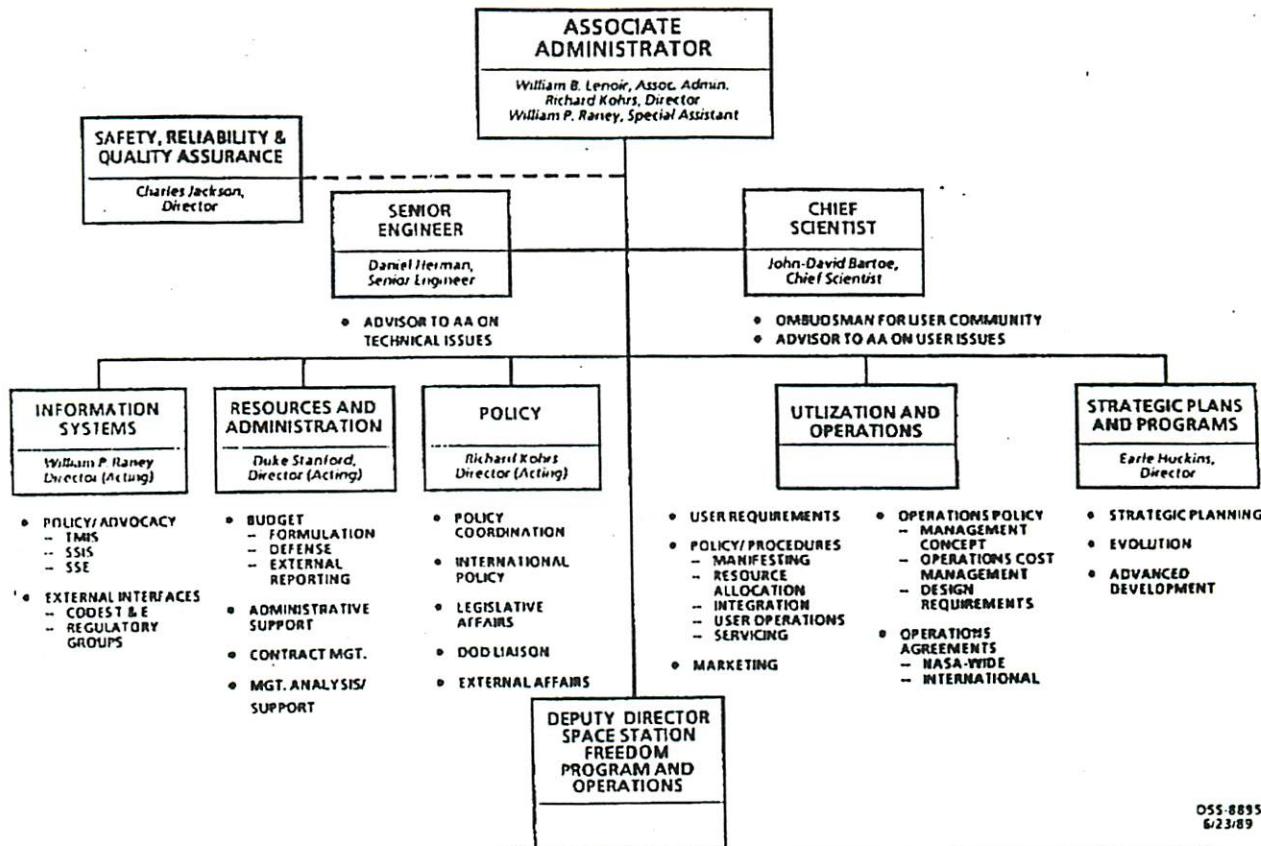
The paper reports NASA plans to go after the Long Duration Exposure Facility (LDEF) in December, using a space shuttle to bring it back. But by December the orbit will be decaying at an accelerated rate.

The story reports the LDEF's orbit altitude was observed at 252 nautical miles in November 1987. A month ago, the satellite was 225 nautical miles above Earth. Projections put it at 191 nautical miles by November, at 180 by Dec. 1, at 166 miles by Dec. 15 and at 130 miles by Jan. 15.

The paper reports if LDEF goes below 130 nautical miles before the rescue is made, NASA will abandon the retrieval effort and the craft will burn up on re-entry.

The story reports if the satellite cannot be saved, many experiments representing scientific efforts from numerous U.S. groups and nine foreign countries, will be destroyed. Of more immediate importance, however, would be loss of valuable information about the damage or changes in spacecraft after long exposure to space travel.

OFFICE OF THE ASSOCIATE ADMINISTRATOR FOR SPACE STATION



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Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Houseman, John	385	169-314	4-1601		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kleine, Henry	363	510-264	7-9690	H Kleine	
Korechoff, Robert	385	169-314	4-0083		
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RA Laskin	
Lattu, Kristan	374	179-206	4-2499	K Lattu	
Lesh, Jim	331	161-135	4-2766	JLesh	
Levin, Dick	311	301-285	4-1253		

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Li, Fuk	334	300-235	4-2849		FLi
Lisman, Sima	343	198-326	4-4022		
Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA	95204		MHumfreville
Millard, Jerry	354	89-1	4-2898		
Moss, Marvin	521	301-456	249-5252		
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rathbun, David	343	198-326	4-8626		
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FShutz	
Shap, Mike	385	169-220	4-7834		
Smith, Jeff L	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Steele, Laura	311	301-285	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	???	264-648	???		
Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 98) ■ Printed 11 July 1989

311.5-212

17 July 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 17 July 1989

PRESENT: Rob Staehle, Randy Cassingham, Dick Turner, Ken McGraw, Paul Henry, Kent Volkmer, Richard Grumm, Hershal Fitzhugh, John Bosley

Next Meeting: 24 July 1989 at 10:30 In 301-271

Notice

Due to a conference room conflict, the Space Station Utilization Team meetings will undergo some room changes over the next few weeks. The following rooms have been set up:

- 301-271 July 24 and July 31
- 301-227 August 7
- August 14 – 28 are not finalized.

Rob Staehle

It is Space Week this week, in honor of the 20th anniversary of Apollo 11 and the 13th anniversary of Viking.

The HUD-IA House Appropriations Subcommittee approved a space station budget of \$1.65 billion for next year, which includes \$65 million for the FTS and none for Code ST. Code E's budget looks healthy so far. Other committees have yet to approve the station budget, so changes are likely. There was a detailed discussion of the possibilities for PE&A's budget. Actual PE&A funding won't be known for 3-5 weeks. Budgetary details will be discussed in upcoming meetings.

Per a letter from Lenoir's office to the Partners, and other indications, the Program's overall direction looks like it will be governed by several factors:

- Reduction in cost, especially peak annual cost
- Keep to the first element launch date (currently set for March 2, 1995 on *Atlantis* with a five-man crew for a one-week mission)
- Slow the station's build-up
- Evolution slowed to "eventual full-capability"
- Simplification of the design and assembly processes
- Reduce management overhead.

Rob attended the first User Operations Working Group meeting at MSFC last week. The meeting was chaired by Tom Recio/MSFC for Bob Clark/SSU. The UOWG is tending much more toward a distributed operations approach, getting away somewhat from the MSFC-only approach put forth a few weeks ago at the SUM meeting. Steve Nauman/MSFC mentioned that "operations will definitely be distributed -- unlike Spacelab". The User Mission Requirements Information System (UMRIS) is now being talked about as a *network of multiple data bases* and will communicate the

user requirements into the Mission Planning System. There was also much discussion regarding the information system architecture, especially uplinking.

Steve Nauman/MSFC encouraged user code (e.g., E, C, R) involvement in Payload Operations and Integration Center (POIC) development. The POIC is to be the single interface for payload activities to the Space Station Control Center (SSCC).

Attendees were also quite interested in the TDRSS zone of exclusion closure study, which was summarized by Mike Devirian. This is to be the topic of a more detailed presentation at the next UOWG meeting.

Phil Cressy/Code E handed out a schedule for early attached payloads. The chart is attached. Known acronyms: APAE = Attached Payload Accommodations Equipment. CDC = Cosmic Dust Collection Experiment. ASTROMAG = Astromag experiment. SCIN = Heavy Nucleus Collector (?). LISA = Lightning Imaging Sensor (?). PPS = Payload Pointing System. UHRXS = Ultra-High Resolution XUV Spectroheliograph. LAMAR = Large Area Modular Array of Reflectors. MPA = Multiple Payload Adapter. CERES = Clouds and the Earth's Radiant Energy System. LIS = Lightning Imaging Sensor. SAGE III = Stratospheric Aerosol and Gas Experiment III. EOS = Earth Observing System. SARR = Small and Rapid Response payload. LCT = Laser Communications Transceiver. PIMS = Plasma Interaction Monitoring System.

Cressy noted that during early operations, each discipline will have a Discipline Operations Team at a Multi-Discipline Operations Center. These teams may later move to individual Discipline Ops Centers at the direction of OSSA's discipline divisions. Early on, the emphasis is on simple experiments and modest resource demands. Later, payloads will grow in complexity and resource demands.

Cressy mentioned that JPL was noted by the reviewers for our inventive acronyms (e.g., SOCRATES, SWIRLS, TIGER, etc.)

Regarding distributed operations, Cressy noted that there is economy in centralized operations, but he "doesn't want to move armies around". He also mentioned words to the effect of "if" we do distributed ops... so he wasn't completely consistent in the matter. He seems to expect that early users will operate from their own facilities, but will go to MSFC for initial training and operations. He went on to say that Centers had not adequately accounted for the costs to OSSA of conducting operations from their local sites. Jeff L. Smith and Hershal Fitzhugh pointed out that while temporary assignments are one matter, there would be great resistance and little precedent for permanent assignment of one Center's personnel to another Center. Fitz said an accounting of MCPF costs for operations at JPL was included in a recent POP submission to Code EN. He will be excerpting appropriate cost items from the overall POP into an upcoming memo, which may also be used to answer Cressy's concern.

Jim Cake, representing OAST from LeRC, talked about OAST payloads. OAST flight experiments are now budgeted in the range of \$30-35 million/year. They plan to expand to \$125-150 million/year in five years, but since they are not growing at their planned rate, they are likely to follow OSSA's lead and piggyback on MSFC operational facilities.

At the previous APPAWG meeting, Code SSU was assigned to indicate how the choice of attachment points was affected by contamination. We will try to find out who it was that was assigned this task and make sure he is aware of our contamination study results.

Richard Masline/366 spoke about the need for uplink video to the station for onboard crew training. The Training Working Group will look into it. Masline also mentioned that the Strategic Defense Initiative had made some interesting advances that could be passed on to station PIs via technology transfer programs. Much is either unclassified, will be soon, or is classified only to the Secret level.

Rob received the *Prototype Mission Planning System Functional Specifications Document* from MSFC. Hershaw Fitzhugh will coordinate a review of it. Anyone else that has input relating to this document should contact Fitz by the end of next week. Inputs will be solicited from 31, 35 and 36.

Rob attended a demo by John Jaap/MSFC of the Mission Integrated Planning System, a computerized scheduler that is now in use for Spacelab. Rob was fairly impressed with it. The input system was fairly complex, but has been used operationally; the output looked quite useable. It runs on a Vax, and is written in Fortran; later versions may run in Ada on an engineering workstation. It currently handles 180 different resources (which is adequate for Spacelab, but it will have to be upgraded for use with the station). Jeff L. Smith will attempt to gather more details on the system. MSFC is planning a Spacelab-based prototype in Fortran for space station, followed by new operational software.

John Hill/MDSSC is investigating moving the resistojets on the station (which, during firing, will result in a 24° pitch offset), and firing for ~24 hours straight every two weeks. This is not only to desaturate the control moment gyros, but in large part an attempt to help use up the excess water waste buildup on the station. Hill is looking for input on the impact of this to payloads, and has talked with Dick Grumm. Rob also brought up contamination concerns, and noted TRAMAR's concern for pitch angles greater than 5° off local vertical/local horizontal.

SRMs for the changeover of 726-21xxx accounts to 726-22xxx numbers are due to Rob today.

Rob sent a letter to Phil Cressy outlining our concern about the multiplicity of space station program payload information data bases that are already creating a burden on PIs. Dick Grumm's March memo on the topic was attached, with some updates noted. Cressy noted that he has heard similar complaints, and appreciated our input.

Randy Cassingham

The *Space Station Freedom Attached Payload Accommodation Strategies* report is in press. It will be in distribution as early as this afternoon.

Ken McGraw

Ken will be heading for Reston for a July 25th meeting with Peter von Gronefeld to talk about the latency study. Jeff L. Smith, SE&I and MITRE will also be there to present.

Dick Grumm

Dick received a memo from Adrian Hooke regarding ISDN and CCSDS protocols for controlling payloads (such as MCPF experiments) with tight latency requirements. Dick will be making a response.

Paul Henry

Paul will be presenting a response to Code ST's "POP call" when he attends the Evolution Working Group meeting at MSFC this week.

Kent Volkmer

Kent prepared a draft RTOP last week for some Code RS work to identify technologies to improve payload utility on the station, and technology experiments which might utilize the station. Jim Kelly of TAP will discuss the work, the proposal for which Judith Ambrus/RS is soliciting through Jim.

Hershel Fitzhugh

Fitz received the JSC paper *Science and Technology Center Group White Paper*. He and Dick Grumm will be providing review input. Fitz also described a perceived change in attitude among MSFC personnel supporting the OSSA Science Utilization Management team regarding the likelihood of distributed payload operations from other Centers.

John Bosley

A 2½ day "kickoff" meeting to start up FY 89 activities of the Telescience Testbed Program (a follow-on to the Telescience Testbed Pilot Project) will be held in August or September at ARC. It will include an overview of the technical and programmatic aspects of this year's program, presentations by each project and related projects, and a demonstration of Ames' Remote Coaching Facility. John has information on whom to contact for more details/firmer dates.

John and Jeff H. Smith are working on an RTOP to support Code RC's telerobotics effort. The task will look at long-lead robotic technology development which, John says, will try to concentrate more on user needs than mere sophisticated technical capability. John will be attending the Telerobotics Intercenter Working Group meeting at LaRC next week with Jack Stocky and Giulio Varsi/TAP.

Jeff L. Smith

Jeff is meeting on the 25th with station director Richard Kohrs, who has asked to be briefed on pricing policy. Jeff has been doing a lot of work in conjunction with Caltech in this area.

On the 26th, Jeff will be presenting the SDTM (System Design Tradeoff Model) system for a working review in Reston. On the 27th, he'll be back in Pasadena for a review of the FROST (Freedom Operations Simulation Testbed) model, presenting it to Allan Webb and Mike Devirian.

Upcoming Meetings

July TBD: Meeting re: Disturbance Management Tools at Reston (Mike Urban). Sima Lisman and Bob Laskin to attend.

July 21: Code ST review of FY 90 plans (limited to EWG members only) at MSFC. Paul Henry to attend.

July 25: Meeting re: Latency study at Reston. Ken McGraw and Dick Levin to attend. Jeff L. Smith may also attend.

July 26: SDTM working review meeting in Reston. Jeff L. Smith to attend.

July 24-27: Telerobotics Intercenter Working Group meeting at LaRC. John Bosley, Jack Stocky and Giulio Varsi to attend.

July 27: FPO review of 510- (Code ST) tasks at JPL. Paul Henry and Jeff H. Smith to present.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

WALL STREET JOURNAL, JULY 13

"HOUSE PANEL CLEARS \$1.65 BILLION FOR SPACE STATION"

"A House Appropriations subcommittee (HUD-independent agencies subcommittee) approved spending an estimated \$1.65 billion to begin construction of a manned space station, but the panel cut by three-quarters the Bush administration's request for funds to develop the X-30 national aerospace plane."

The JOURNAL reports the space and science projects were part of a \$65 billion spending bill for fiscal 1990, beginning Oct. 1.

The paper reports to help pay for its domestic priorities, the subcommittee would restrain "the already considerable growth in NASA." The JOURNAL says the figure approved for the Space Station represents a cut "that could force delays in completion of the massive project."

The story reports total NASA spending would grow 15 percent to more than \$12.3 billion in FY90, but that would be \$946 million below the administration's request. The subcommittee approved the full \$30 million requested for two unmanned probes to Saturn and a comet, but cut the president's request for the national aerospace plane by \$94 million.

The JOURNAL reports the full Appropriations panel could take up the measure as early as today.

AEROSPACE DAILY, JULY 14

"NASA MUST BALANCE COMMITMENTS WITH BUDGET: TRULY"

"NASA, faced with a major House subcommittee reduction in Space Station funding, must balance its commitments with its resources and cut or eliminate programs if the budget can't support them, Administrator Richard H. Truly said yesterday."

The DAILY reports Truly, questioned at a news conference about how NASA would absorb the Station cut, didn't respond directly but said, "I think the budget battles are not over."

"Our commitments and our resources have got to be in balance," Truly said. "If the Congress walks away from the space program, we're going to cancel programs to match their...commitment."

The DAILY reports the House Appropriations VA, HUD-independent agencies subcommittee cut \$400 million from the \$2.1 billion requested for the Space Station as part of an overall \$1 billion reduction in NASA's \$13.3 billion request for FY90. The full committee expects to take up the bill Monday or Tuesday.

The paper reports NASA has told Congress that a \$400 million Space Station cut in FY90, combined with a \$600 million cut in FY91, would result in a one year slip or require that some equipment and experiments be delayed or eliminated. Truly and Deputy Administrator J.R. Thompson have said that they are giving priority to maintaining a schedule which calls for first element launch in 1995.

"We are not scaling the Station down; we are starting a study" headed by Langley Research Center "in response to threats from Congress made to us in our hearings," Truly said. "I think it would be grossly inappropriate and poor management if we didn't take that seriously for what it means."

USA TODAY, JULY 14

"FLY ME TO THE MOON? HALF WOULD GO"

"Twenty years after man first stepped on the moon, 49 percent of us would hop in the rocket for the trip if asked, a USA TODAY poll finds."

The paper reports the poll of 612 people also finds most are seeking new challenges in space.

* A space station was top choice; 14 percent say Mars should be the next destination. 7 percent say astronauts should return to the moon. However, 22 percent say astronauts shouldn't be sent anywhere, because "it's a waste of money."

* 77 percent say the time, money and effort for the moon landing was worth it. Ten years ago, in a CBS/NY Times poll, only 47 percent said so.

* Republicans, men and people under age 35 were slightly more supportive of the moon effort than Democrats, independents, women and people 35 and over.

* 65 percent of the men say they would go on a trip to the moon; only 34 percent of women would go.

USA TODAY says the phone poll by Gordon S. Black Corp. has a 4 percent margin of error.

AEROSPACE DAILY, JULY 19

"HOUSE PANEL ADVISES NASA TO CUT SPACE STATION OVERHEAD"

"NASA can soften the impact of a \$395 million cut in the Space Station program by reducing 'overhead' associated with it, the House Appropriations Committee said in its report on the fiscal 1990 appropriations bill."

The DAILY reports the committee acknowledged that reducing the Space Station development line by \$395 million may cause a slip in the first element launch beyond the current date of March 1995, or some "descoping" of Block I elements.

The paper reports the committee included language requiring that not more than 50% of the \$395 million reduction in the development package be taken from the work package prime contractors with an estimated 1990 content value of \$1.288 billion.

The DAILY reports the committee said it expects to have an independent analysis of Space Station overhead costs made as soon as possible. In the meantime, the report continued, NASA should "scrub" outyear overhead costs so that maximum dollars are applied to the work package primes for the actual development of flight hardware.

311.5-218

24 July 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 24 July 1989

PRESENT: Rob Staehle, Randy Cassingham, Bill Gray, Paul Henry, Sima Lisman, George Goranson, Bob Easter, Marvin Moss, Hershaw Fitzhugh, Richard Masline, Kristan Lattu

Next Meeting: 31 July 1989 at 10:30 In 301-271

Notice

Due to a conference room conflict, the Space Station Utilization Team meetings will undergo some room changes over the next few weeks. The following rooms have been set up:

- 301-271 July 31
- 301-227 August 7
- 301-352 August 14-28.

Rob Staehle

Bob Easter is in town for the Directors Review and Discussion (DRD) meeting here this week, so Rob asked him to come by the meeting and talk about plans for next year.

Bob Easter

Bob summarized the presentation to be made at the DRD meeting this afternoon. The House appropriation committee marked down the space station budget request from \$2.05B to \$1.65B. Among other miscellaneous actions, the line item for Operations and Utilization Capabilities Development (under John Cox's office/Code SSU) was zeroed.

The Centers have put in their space station budget requests for a total of \$2.6B (larger than even the NASA total space station budget request for FY90).

The JPL Orbital Debris Radar was moved from the space station budget to the Construction of Facilities budget.

NASA had asked for \$15M for the Flight Telerobotic Servicer; it was upped to \$65M.

Level II wants to staff up to 400 in FY 90, but Bob thinks this is unlikely. There are a lot of rumors floating around about the future of Level II, but there has been no public discussion nor a clear direction of change. Now that Ray Tanner is gone, the Reston Level II office is currently being run by Jim Sisson (Deputy Program Director).

Bill Lenoir is acting associate administrator for both Code S and Code M (earlier, Truly announced that the STS and Station management structures would be combined; this seems like a first step in that direction).

The Program Support Contractor's (Grumman) role is likely to be reduced. PE&A will not be utilizing PSC personnel as of October 1.

LaRC is currently doing a "scrub" of the station configuration for Kohrs and Lenoir (Ray Hook is their lead person) to figure out how to get the budget down to the likely \$1.6B funding level. Part of their charter is to keep to the current first element launch date (03-02-95) and to keep our commitments with the international Partners. One possible outcome is a much-reduced station configuration (e.g., ~37.5 kw power, 4 person crew on 90 day rotation, open ECLSS, virtually no EVA, reduced data transfer capability (in the range of STS capability), little or no active cooling, and possibly no attached payloads, thrusters would use hydrazine instead of hydrogen/oxygen.) Lenoir is supposed to make recommendations based on the LaRC study at the end of the week.

PE&A is currently doing a scrub on the Program Requirements Document, which has been fairly stable for about a year and half. If there are large changes resulting from LaRC's study, it will likely have to be done again.

Randy Cassingham

A chart showing the early schedule for attached payloads was supposed to be attached to last week's minutes, but about a third didn't have a copy. If you missed it, call Randy (or send him a NASAmail message) and he'll send a copy.

Paul Henry

Paul attended the Evolution Working Group (EWG) meeting last week. One interesting item: the astronaut office submitted an unsolicited station configuration that featured a much smaller pressurized volume. It was not taken too seriously. Paul presented our concepts for work in FY90: space station lunar and planetary mission trajectory analysis, and advanced robotics for vehicle processing at an orbiting propellant depot.

An international EWG meeting was convened to brief the Partners on current situations; the Partners had been pretty much "in the dark" about our thoughts on station evolution. ESA reported that they want to evolve their program to an autonomous manned capability, including an escape capability for their astronauts. In the next year, they want to concentrate on human factors. Columbus is considered a testbed for their own program later, as Hermes is developed. NASDA (Japan) will stay with *Freedom* somewhat longer. They want to use H-1 and H-2 ELVs for JEM logistics supply within 10 years, and they want to put up their own data relay satellites to remove their data stream from TDRSS. Then, they want to make the JEM "back porch" into a free-flyer, bringing it back for servicing/payload changeout much like a SKP. Canada will continue its Mobile Servicing Center development, and is looking toward a multiple arm system. A symposium on station evolution is scheduled for October 31-November 2 at JSC. More info will follow.

Paul talked with Dave Hixon regarding the separate release of the contamination section from the SKP report. The contamination results will be presented (by Jerry Millard and Paul) in Reston on August 2 as a dry run for a later presentation to Kohrs and/or Lenoir. Hixon would also like to see a first cut on the costs (some of which might be negative) of the accommodations proposals made by the Attached Payload Accommodations Strategies study task.

Sima Lisman

Sima went to Reston last week to present Disturbance Management Tools task results. This is likely to continue into FY90.

Marvin Moss

Marvin was also in Reston last week to talk with Mukand Gangal about the Availability design guidelines document.

Hershaw Fitzhugh

Fitz went to KSC last week to an OSSA meeting about Science and Technology Centers (though the current trend is toward renaming them to "Payload Integration Centers"). At a previous meeting, it was mentioned that MSFC will buy the racks for pressurized payloads, fiddle with them, send them to KSC (who will fiddle with them some more), and then the racks will be available for user integration -- sometime in 1994! Partly because of this, MSFC will do all integration work for "first stage" payloads (which Fitz took to mean the first flight). At last week's meeting, Randy Tilley/KSC agreed that all Centers could use their own documentation systems for payload information, as long as KSC could glean the required information from them for their own database. This is better than previous information requirements, which demanded data in a specific format. It was also mentioned that attached payloads may/will have to go through GSFC for integration as pressurized payloads will be going through MSFC.

Richard Masline

At the Utilization and Operations Working Group meeting two weeks ago, MSFC talked about a more interactive operations viewpoint, but this seems like a "cover" and more command checking than they are saying will be done. Also, it was said that the high-rate downlink will probably be limited to an average of *less than 138 mbps* (with a range of 88-188 mbps). After the zone of exclusion data dropout, playback will be at ~100 mbps -- though it will be gathered at 300 mbps -- so it will take up to 45 minutes to download.

Kristan Lattu

The FROST (Freedom Operations Simulation Testbed) system segment 1 model is about ready for delivery. Ultimately, FROST will allow tradeoff modelling of various operational aspects. A FROST task review will be held in room 301-271 at 9:00 on Thursday.

Kristan is working with Fitz on reviewing BDM's payload design guidelines document. She is writing a memo outlining that a different tack should be taken -- they are following a similar road that Kristan went down two years ago that dead-ended.

Upcoming Meetings

July 25: Meeting re: Latency study at Reston. Ken McGraw and Dick Levin to attend. Jeff L. Smith may also attend.

July 26: SDTM working review meeting in Reston. Jeff L. Smith to attend.

July 24-27: Telerobotics Intercenter Working Group meeting at LaRC. John Bosley, Jack Stocky and Giulio Varsi to attend.

July 27: FPO review of 510- (Code ST) tasks at JPL. Paul Henry to present.

August 2: Contamination study dry-run presentation in Reston. Jerry Millard and Paul Henry to attend.

August TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend.

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry to attend.

Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
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Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
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Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBreckenridge
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Cassingham, Randy	311	301-285	4-1273	RCassingham	
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Coffin, Dick	317	233-208	4-3730	RCoffin	
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Deshpande, Govind	311	301-285	4-1279	GDeshpande	
<u>Devirian, Mike</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7209</u>	<u>MDevirian</u>	
Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	521	301-460	4-4952		
Garrett, Hank	521	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	521	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Houseman, John	385	169-314	4-1601		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	506-310	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kelley, Jim	861	180-602	4-7068		
Kleine, Henry	363	510-264	7-9690	HKleine	
Korechoff, Robert	385	169-314	4-0083		
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Lesh, Jim	331	161-135	4-2766	JLesh	

	Sec	Mail Stop	Phone	NASAmail	TELEmail
Levin, Dick	311	301-285	4-1253		
Li, Fuk	334	300-235	4-2849		FLi
Lisman, Sima	343	198-326	4-4022	SLisman	
Lyu, Michael	522	301-476	4-9411		
<u>Mahoney, Bill</u>	<u>328</u>	<u>169-327</u>	<u>4-6606</u>	<u>WAMahoney</u>	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Mangano, Mike	352	158-224	4-7699		MMangano
Mann, Ken	343	301-445	4-1748		
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
<u>Masline, Richard</u>	<u>366</u>	<u>301-440</u>	<u>4-4889</u>	<u>RMasline</u>	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
Millard, Jerry	354	89-1	4-2898		
Moss, Marvin	521	301-456	249-5252		
<u>Mostert, Robert</u>	<u>311</u>	<u>301-285</u>	<u>4-1267</u>		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rathbun, David	343	198-326	4-8626		
Rayman, Marc	331	161-135	4-2544		
<u>Robey, Judith</u>	<u>355</u>	<u>HQ/SU</u>	<u>8-457-1187</u>	<u>JRobey</u>	<u>JRobey</u>
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FShutz	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Steele, Laura	311	301-285	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
<u>Von Gronefeld, Peter</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7649</u>	<u>PVonGronefeld</u>	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	???	264-648	???		
Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 98) Printed 25 July 1989

311.5-224

31 July 1989

TO: Distribution *DC*

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 31 July 1989

PRESENT: Rob Staehle, Randy Cassingham, Ken McGraw, George Goranson, Paul Henry, Bing Chen, Richard Grumm, Kent Volkmer, Hershal Fitzhugh, Sima Lisman, Marvin Moss, Leigh Rosenberg, Kristan Lattu

Next Meeting: 7 August 1989 at 10:30 in 301-227

Notice

Due to a conference room conflict, the Space Station Utilization Team meetings will undergo some room changes over the next few weeks. The following rooms have been set up:

- 301-227 August 7
- 301-352 August 14-28.

Rob Staehle

Budgetary uncertainties remain uncertain... Rob conjectured that Code ST will probably survive severe cuts because of the President's new initiatives.

There will be an OSSA Space Station Utilization Program Review at headquarters August 24-25. Rob, Bob White and Hershal Fitzhugh will attend. Rob has a copy of the agenda.

Ken McGraw

Ken and Stuart Friesema (SU/JPL) attended the UMRIS Information Planning Group meeting last week. Pete Williams announced that the group's counterpart, the Utilization and Operations group, will be forming shortly and a list of required positions will be issued soon.

At the meeting, MSFC gave a presentation of their MIPS (Mission Integrated Planning System) scheduling software. The schedule is driven by information in the User Experiment Requirements Data Base (UERDB), which appears to overlap UMRIS. The UERDB appears to be very good, having most of the features needed by UMRIS. Ken will send Richard Beatty's quotations from the PRD and PDRD regarding user single-point-of-contact requirements to Carolyn Kimball, who is leading the UMRIS effort.

Fitz noted that Code EM is concerned about giving too much payload information to Code SU, thus allowing space station to make OSSA's decisions for them, perhaps with a less favorable outcome.

Dick Halpern/SU was to sign-off on a policy statement for data bases for Levels I, II and III, coordinating the data bases among themselves and with users, but he did not sign it before he left since he did not wish to burden his successor.

The UMRIS Overview Document draft is due out in mid-August. The group will also soon start to address security issues, which have been ignored so far. They are also discussing having a flag on each field of the database to indicate the field's quality (i.e., whether the entry is a guess, requirement, design parameter, etc.) in the hope that investigators will be more willing to supply something other than TBDs. (Several members of the Utilization Team mentioned that one of the big problems with data bases so far is that the questions lack definition and/or instructions, so that it is sometimes difficult even to supply information that is known. Also, the proliferation of data bases continues: Dick Grumm recently received a 100 page questionnaire ("this is not a data base"...) from Code EN regarding laboratory support equipment.)

The soon-to-be-released version 2.5 of UMRIS will be implemented on an IBM 3090 mainframe instead of the VAX machine previous versions have been running on.

George Goranson

Jerry Murphy and Al Whittlesey/521 are helping Dana Brewer/SSE review several electromagnetic environmental effects documents prior to submission for baselining. They are part of a group that met last November in Reston; the next review meeting will be August 14-18 in Huntsville. The documents are:

- JSC 30237, *Electromagnetic Emission and Susceptibility Requirements for EMC*
- JSC 30238, *Electromagnetic Techniques*
- JSC 30240, *Grounding Standard*
- JSC 30242, *Cable/Wire Design and Control Standard*
- JSC 30243, *Specification, Systems Electromagnetic Compatibility Requirements*
- JSC 30245, *Electrical Bonding Specification*
- JSC 30246, *Electrical and Electronic Material and Process Standard*

George will be talking with Dana regarding work and funding for next year.

Paul Henry

Paul attended the FPO review last week, where he presented his and Jeff H. Smith's Code ST-sponsored work on trajectories and advanced robotics. The review went well.

Paul has started work on the high declination trajectory from space station task. The trajectory video is now on a high priority.

Paul and Jerry Millard will be travelling to Reston to do a dry-run presentation of the contamination study results to Dick Laeser and other Level II personnel. Dana Brewer/SSE will be invited, along with others. The presentation was briefly on Jim Sisson's (acting head of Level II) calendar for Thursday, but will need to be rescheduled.

Bing Chen

Bing has returned from two years as a detailee at headquarters in Bob Benson's office at Code EM. He will be working with Dick Grumm, Bob White, Hershal Fitzhugh and others on space station tasks.

Bing brought some insight to the space station payload selection process. JPL is often perceived as "expensive" (possibly because of the difference in how JPL salaries and civil service salaries are paid), but we also have the reputation for building good equipment. Some proposals from other Centers included endorsements from outsiders (e.g., astronauts, Sally Ride) which does seem to help. We didn't think of astronaut endorsements on our proposals, though it is not clear if this would have been applicable.

Richard Grumm

Dick notes that a Containerless Processing Workshop will be held October 16-19 at the Pasadena Hilton. People working on communications latency and microgravity may want to attend. An announcement and preliminary agenda is forthcoming.

Kent Volkmer

OAST is hosting a workshop on Technology for Space Station Evolution January 9-12 near Dallas. JPL will chair the robotics portion; Kent will be presenting our advanced robotics work. Kent attended a planning meeting last week for the workshop. It will be large: ten other disciplines (other than robotics) will be represented.

Hershaw Fitzhugh

An OSSA Science Utilization Management and Shuttle Mission Management Director's Review will be held the week of August 14 near Huntsville. Bob White will present his payload classification document there, and again at the Utilization Program Review the next week at NASA HQ. Without major objections from the Centers, it is hoped that OSSA will then adopt the classification scheme which has been worked out here at Code EM's request.

Marvin Moss

Marvin is reviewing a change request to the *Space Station Program NASA Level II Quality Assurance Audit/Survey Plan*.

Leigh Rosenberg

Leigh attended the telerobotics latency status review and working session last week in Reston. So far, the results show that the *best case* (which will be difficult or impossible to achieve) shows a command latency time of six seconds. This stimulated much discussion; why is this so large, considering that the Shuttle's voice channels have a delay of less than a second? Since the voice channels have top priority, and are taken off the data stream first, can a user put a modem on a voice channel to reduce latency? (There are 24 ISDN voice circuits planned for space station, according to some of Dick Grumm's JSC contacts.) Leigh will inquire with Dick's JSC contacts and attempt to resolve the technical discrepancy.

Upcoming Meetings

August 2: Contamination study dry-run presentation in Reston. Jerry Millard and Paul Henry to attend.

August TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

August 14-?: Science Utilization Management review meeting near Huntsville. Bob White to present.

August 14-18: EMC-related document review meeting (Code SSE) in Huntsville. Jerry Murphy and Al Whittlesey to attend.

August 24-25: OSSA Space Station Utilization Program Review at headquarters August 24-25. Rob Staehle and Hershaw Fitzhugh to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend.

October 16-19: Containerless Processing Workshop at the Pasadena Hilton.

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry to attend.

January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

WASHINGTON POST, JULY 24
"SOVIETS TO REOPEN SPACE STATION"

"The Soviet Union will send a crew to the currently mothballed space station Mir on Aug. 30, give or take a day or two, according to Maj. Gen. Alexei A. Leonov, deputy chief of cosmonaut training. Leonov attended celebrations of the Apollo 11 moon landing anniversary here as a guest of the U.S. branch of the Association of Space Explorers, an international astronauts group."

The POST reports the station has been unmanned since late April. Crews returned to Earth, Leonov said, because one of the two modules to be added to the station to increase research space to hold special equipment was not ready on time, and the crews to operate them had not be trained.

ASSOCIATED PRESS, JULY 24

"A test model of a craft that could be used to return astronauts from Space Station Freedom will be tested in a suborbital launch in August by a private California firm, an official said monday."

AP reports the American Rocket Co., headquartered in Camarillo, Calif., will launch a single stage rocket to an altitude of 100 miles carrying a model of a space station crew return craft developed by the Massachusetts Institute of Technology. The craft will be recovered after falling into the sea about 135 miles off shore from the Vandenberg Air Force launch site.

AP reports the model, about a one-third scale, will test an experimental concept called parashield. The device, shaped like an umbrella, will be used to protect the model during the high speed portions of its return to Earth, and then will turn and act as an airbrake as the atmospheric thickens. The primary purpose of the mission was to test the parashield behavior during its fall toward Earth.

Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Arnett, James	521	301-466	4-4452		
Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beer, Reinhard	322	183-301	4-4748		
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>301-285</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
<u>Cassingham, Randy</u>	<u>311</u>	<u>301-285</u>	<u>4-1273</u>	<u>RCassingham</u>	
Chen, Bing	???	67-201	4-5353	CPChen	
Chen, Chien-C	331	161-135	4-3855		
Coffin, Dick	317	233-208	4-3730	RCoffin	
Das, Rahde	342	303-300	4-9736		
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Diner, David	324	169-237	4-6319		
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
<u>Elachi, Charles</u>	<u>700</u>	<u>180-703</u>	<u>4-5673</u>	<u>CElachi</u>	<u>CElachi</u>
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	521	301-460	4-4952		
Garrett, Hank	521	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	521	122-113	4-2809		
Graf, Jim	313	233-306	4-4765	JGraf	JGraf
Gray, Bill	311	301-285	4-1090	BillGray	
Greenfield, John	311	301-285	4-1092		
Grumm, Richard	355	183-401	4-9267	RGrumm	
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Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Murphy, Gerald	521	301-460	4-6930		
Oleson, Gary	120	Reston	8-457-7590		
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Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rathbun, David	343	198-326	4-8626		
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FShutz	
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Steele, Laura	311	301-285	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591		
Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
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Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	???	264-648	?-????		
Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 98) □ Printed 31 July 1989

311.5-225

7 August 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 7 August 1989

PRESENT: Rob Staehle, Randy Cassingham, Leigh Rosenberg, Sima Lisman, Ken McGraw, John Bosley, Paul Henry, Kent Volkmer, Richard Masline, Marvin Moss, Kristan Lattu

Next Meeting: 14 August 1989 at 10:30 in 301-352

Notice

Due to a conference room conflict to accommodate the Voyager flyby, the Space Station Utilization Team meetings will undergo some room changes over the next few weeks. The meetings will be held in room 301-352 through August 28.

Rob Staehle

Rob passed on some information from Bob Easter regarding the current rumors about space station funding for next year.

Aaron Cohen (director of JSC) and Jack Lee (director of MSFC) will be reporting this week on the results of a study on the space station program's management structure. It will probably say that it should look like the STS management structure. Cohen is also working on a task force to look at the entire NASA organizational structure, partly in response to space station budget problems and as a result of President Bush's new initiatives. There are several JPLers on this task force. They include Don Rea (working with Lennard Fisk), John Beckman and Dave Smith.

Ray Roberts is now the Level II Code E Platform manager in Reston. Fisk, Lenoir and Truly have agreed that the polar platforms' management should move to Code E.

Regarding the 726-21xxx SRMs changing to 726-22xxx numbers: thanks to Bob Laskin, Randy Cassingham and Steve Gabriel for getting theirs in. Tom Handley got one in, but needs to be re-run with the correct customer number. SRMs are still needed from Leigh Rosenberg, Jeff H Smith, Jeff L Smith and Dick Turner. Be sure to use the right Customer Number (noted on Rob's memo, 476-30...) -- that's why they have to be re-run in the first place.

Rob will be attending the OSSA Space Station Utilization Program Review meeting at headquarters. While there, he will be talking with Judith Ambrus regarding Kent Volkmer's proposed task for next year. He will also be meeting with Doug O'Handley/Code Z on Monday the 21st regarding work for them on Lunar Base and Manned Mars initiatives work.

Leigh Rosenberg

Leigh is still working on resolving the issues brought up at last week's meeting regarding ISDN for voice communications with the station. So far, the people at JSC are saying that ISDN "is not an option" for implementation on the station. This sparked quite a discussion about latency issues. Richard Masline noted that, with the current slate of payloads, about 220 manhours per day

of intravehicular activity would be needed; this makes ground control and commanding a requirement for payload productivity. According to present studies, latency time will increase dramatically from the present Shuttle/ground TDRSS link if proposed space station architectures are used.

Sima Lisman

A Loads and Dynamics Working Group meeting that was scheduled for this month has been pushed to an as-yet-unannounced date in September. She will be attending it.

John Bosley

Jeff H Smith's Code ST task to identify automation & robotics applications on the station has generated a list of "primitive" task elements which are applied in analyzing EVA and telerobotic tasks. The list was distributed for comment at a June 7 meeting attended by EVA task analysts from several NASA Centers and contractors. Comments were due July 28; LaRC, JSC and KSC have provided comments, which will be added as notes to the list, which is in hypertext for ease of access. The annotated list will soon be re-distributed for use in future analyses.

Kristan Lattu

Kristan is finishing up on the final report responding to OSSA's effort to develop guidelines to extend payload life (part of our SUM team efforts). It is uncertain if this report will be completed in time for the SUM Director's Review, which Hershaw Fitzhugh will attend. If not, the report will be circulated shortly thereafter (i.e., by the end of the month).

Paul Henry

Paul is on Sisson's calendar again -- hopefully firmly, this time, to present our contamination study results with Jerry Millard/354. Paul hopes to get the separate contamination report issued by the time he meets with Sisson on the 18th.

Leigh Rosenberg and Quintus Jett/311 will be preparing some quick cost estimates for SKP and other attached payload accommodation enhancements described in the recent attached payload accommodation strategies report.

Paul has started the analysis work on high-declination departures with the help of a new hire, Jayant Sharma/312, a recent MIT graduate. Paul will be running the SRM on the trajectory video soon.

Richard Masline

The Data Handling Options task is complete, and the final report will be issued soon.

Richard received copies of ESA's operations overview documents, which look quite interesting. Richard notes that ESA have their ground operations strategies thought out better than we do.

Richard has been working recently to evaluate some Small Business Innovation Research proposals. One or two look like they would be of help to us, should they be funded.

Marvin Moss

Marvin finished his review of a change request to the *Space Station Program NASA Level II Quality Assurance Audit/Survey Plan*. It looks pretty good to him. It doesn't have much in it regarding availability, but what is in there corresponds well to our way of thinking.

Upcoming Meetings

August 14-?: Science Utilization Management review meeting near Huntsville. Bob White to present, Hershal Fitzhugh to attend.

August 14-18: EMC-related document review meeting (Code SSE) in Huntsville. Jerry Murphy and Al Whittlesey to attend.

August 15-16: Operations Management System Working Group meeting at JSC. Richard Masline to attend.

August 18: Contamination task results presentation to Sisson at Headquarters. Jerry Millard and Paul Henry to present.

August 24-25: OSSA Space Station Utilization Program Review at headquarters. Rob Staehle, Bob White and Hershal Fitzhugh to attend.

August TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September TBD: Loads and Dynamics Working Group meeting at TBD. Sima Lisman to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 16-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend.

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry to attend.

January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, AUG. 4

"HOUSE PANEL APPROVES \$13.3 BILLION FOR STATION"

"The House Science, Space and Technology Committee yesterday approved a \$13.3 billion FY90 NASA authorization bill that includes full funding for the Space Station and restricts most use of the Space Shuttle to payloads requiring a 'manned presence' for deployment."

The DAILY reports the bill includes \$2.1 billion for the station and a one-year extension of a three-year authorization that provides \$3.5 billion for the program in FY92.

The paper reports the committee approved a watered down amendment offered by Rep. Jack Buechner directing NASA to use the Shuttle only for payloads that require manned deployment. The revised version gives NASA more latitude in determining which primary and secondary payloads could be exempted from the requirement.

The DAILY reports the committee also approved an amendment directed at Australia's proposed commercial space launch facility at Cape York. It would ban U.S.-built satellites from flying on Soviet expendable launch vehicles unless fair pricing agreements are negotiated by the U.S. Trade Representative, or the President certifies that the cost of the Soviet ELV is not more than 25 percent below that of a comparable U.S. ELV.

SPACE BUSINESS NEWS, AUG. 7

"IRATE STATION PARTNERS CONVERGE ON NASA"

"European, Japanese and Canadian space station managers descended on Washington last Thursday for a conference with NASA on agency proposals to scale down the space station."

The paper says they were reacting to a reported NASA plan to do away with the station's truss structure and eliminate other facilities. Reimar Lust, head of the European Space Agency, told "Space Business News" that if the U.S. significantly changes its commitment to the station as designed, Europe and the other international partners are prepared to go it alone.

Space Business News reports that Lust, after visiting Washington for President Bush's July 20 space policy speech, was denied an opportunity to meet with either Bush or Vice President Quayle. Instead, he wrote an irate letter to the State Department and NASA Administrator Richard Truly reminding the U.S. of its signed agreement not to alter station design without consulting with its international partners.

The paper reports Lust said he told Sens. Barbara Mikulski and Jake Garn that Europe would never again cooperate with the U.S. in future joint projects if the U.S. reneged on its station commitments. "I think they were surprised to hear this, but I was completely serious," Lust said.

Space Station Utilization Team Weekly Meeting Minutes

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<u>Elachi, Charles</u>	<u>700</u>	<u>180-703</u>	<u>4-5673</u>	<u>CElachi</u>	<u>CElachi</u>
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
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Kelley, Jim	861	180-602	4-7068		
Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
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Lyu, Michael	522	301-476	4-9411		
<u>Mahoney, Bill</u>	<u>328</u>	<u>169-327</u>	<u>4-6606</u>	<u>WAMahoney</u>	
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Masline, Richard	366	301-440	4-4889	RMasline	
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Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-603	4-8581	WSchober	
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Sharma, Jayant	312	301-170	?-????		
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<u>Starsman, Ray</u>	<u>120</u>	<u>Reston</u>	<u>8-457-7226</u>	<u>RStarsman</u>	
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Zenone, Ron	???	264-648	?????		
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For additions or changes to this list, contact Randy Cassingham

(total 99) ■ Printed 8 August 1989

JET PROPULSION LABORATORY**INTEROFFICE MEMORANDUM**

311.5-236

21 August 1989

TO: Distribution *RC*

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 21 August 1989

PRESENT: Rob Staehle, Randy Cassingham, Paul Henry, George Goranson, Kristan Lattu, Bert Hansen, Leigh Rosenberg, Jerry Olivieri, Cate Heneghan, Marvin Moss, Sima Lisman, Tom Handley

Next Meeting: 28 August 1989 at 10:30 in 301-352

Notice

Due to a conference room conflict to accommodate the Voyager flyby, the Space Station Utilization Team meetings will be held in room 301-352 through August 28.

NOTE: Since Randy Cassingham was on vacation last week, this week's minutes includes information from both this week's and last week's meeting.

Correction to the last issue of the minutes: it was reported that George Goranson the group meeting to discuss electromagnetic environmental effects documents "met last November in Reston". The meeting was earlier this month.

Rob Staehle

With the exception of tasks identified by Mike Devirian in a memo to task managers, expenditures on PE&A tasks should continue at the rate shown in July RSRs. Any higher rate between then and now must be corrected and compensated. This will assure funding for 5-6 weeks into FY90. Note that all task products are still due on or before September 30th unless otherwise negotiated with the Reston task manager. Other specifics are in Mike's memo.

Polar-orbiting Platform servicing studies accounts are closed -- no further work is required.

Two Division 34 Space Station Attached Payload Pointing System whitepapers have been issued; one is subtitled *Pointing System Accommodation Strategy and Options White Paper* (JPL D-6547), the other *Pointing System Design Concept and Performance Analysis White Paper* (JPL D-6543). Sima Lisman will be sending copies for Rob to Phil Cressy/EM, Mark Sistilli/EM, Remer Prince/SU, Bob Kelly/SSC and Marty Sedlezak/GSFC. Both papers were funded by OSSA, but were based partially on prior work for Codes E and S. Sima can provide copies to anyone who was not on the distribution list.

A new OSSA Space Station Organization chart has been released; a copy is attached.

Per a video presentation to NASA employees by Richard Truly and Frank Martin on July 28, Space Station *Freedom* will be used for staging for missions to the Moon and Mars. The Moon will be man-tended by 2001 by four people for 30 days. Six Shuttle-C flights plus one STS flight per year. Space Station *Freedom* and lunar base will be used to physiologically simulate the Mars trip

with appropriate periods of zero and fractional gravity levels. Expect a major Agency restructuring for new initiatives -- everyone is taking Bush's speech seriously and most are responding positively.

Lynne Cooper/366 reviewed the *Prototype Mission Planning System Functional Specifications Document* for Richard Masline. Her comments have been passed on to MSFC by Hershal Fitzhugh.

A meeting of the Contamination Working Group is on the SUM bulletin board calendar on NASAmail. It is not known where the meeting is. Apparently, no one at JPL is planning to go.

An ESA user operations concepts document, which arrived in a plain brown wrapper, was made available at the meeting.

There has been no change in the FY90 budgetary uncertainty in Reston...

A summary of the reduction of the station's scope and capabilities as a result of the Langley study was passed around the meeting. Contact Rob if you need a copy. JPL was not involved in the LaRC exercise, nor were the international Partners, who aren't any too happy with the results. Code E is formulating a response to the descoping -- there is little room left for payloads. Hershal Fitzhugh will coordinate our part of the Code E response (an overview of the response outline is attached) -- please cooperate with him if he calls. Our position will likely be to support co-orbiting platforms, which could be better for some of our payloads anyway. Another change we're likely to see soon: more discussion of the cost of the various capabilities -- there has been little such cost data provided in the past.

The Code E semi-annual space station utilization review will be held this week at headquarters. Rob, Bob White and Hershal Fitzhugh will attend. Rob will be pitching for more utilization work, and will be meeting with Judith Ambrus/RS regarding Kent Volkmer's task. Rob, Paul, Chet Borden and Rich O'Toole will be meeting today with Doug O'Handley/Z to discuss pitching more work to Code Z, especially in the area of lunar initiatives.

Rob attended a demonstration of the FROST (Freedom Operations Simulation Testbed) model this morning. It is not yet realistic (since there is no detailed end-to-end information system architecture as yet), but it appears to have useful capabilities in simulating the data flow for varying information system architecture options.

Tom Handley

Tom talked with Jim Doane regarding missions for orbiting debris studies. The SDI organization is very interested in getting data on orbiting debris; we will be approaching them to see if they want to co-fund some investigations. Two Quicksat flights are already manifested through the SDIO. Apparently, at least three U.S. satellites have been destroyed by impacts with orbital debris. Tom is working through Ken Russ/TAP.

Chuck Ivie is in Reston. He advised Tom that the Japanese are there with a ten-page list of complaints as a result of the Langley rescoping study.

Randy Cassingham

NASA is getting antsy about getting the Long Duration Exposure Facility back, and is considering asking the DOD to delay one of their manifested Shuttle flights so the slot can be used to get LDEF. Tom Handley noted that they are even studying to determine if there is any way the Galileo launch mission can be used to go and grab LDEF! The SDIO is also keenly interested in getting it back. A nice change considering the apparent disinterest in retrieving LDEF a few months back. See the attached "Daily News in Briefs" items for more details on LDEF.

Paul Henry

Paul is still on deputy Space Station Program Director Sisson's calendar for the presentation of the contamination study results. Randy was able to get the final report to printing before he left on vacation; it was out on time for Paul to take a copy along to the meeting.

Andrey Sergeyevsky will complete the Code Z annual report input today, to be sent to Karen Brender/LaRC today.

The high-declination trajectory work has started; Jayant Sharma is coming up to speed. Quintas Jett is starting work on the costing work for the payload accommodations options.

The presentation of the contamination study results to Sisson went well last week. It was well attended: John Cox/SSU, Richard Snider/SSE and others were there (although Dana Brewer was on travel). There were many good questions from those present. Sisson asked us to coordinate with some similar efforts going on at MSFC and LeRC; Dave Hixon/PE&A will set up a meeting or workshop in Reston. There was some discussion at today's meeting as to whether the Contamination Working Group is doing any work of this nature. It seems not -- they are mostly writing requirements.

The departure trajectory video task is underway. Steve Cook/ST asked whether it would be ready in time for the Space Station Evolution Symposium (October 31-November 2), but since JPL's video facilities will be swamped with Voyager images in the next several weeks, the October goal is unlikely to be reached.

The high-declination lunar trajectory work has also begun. The development of software for the lunar work is budgeted for FY90, but it is likely that some of the work will begin early.

Bert Hansen

Bert is normally at another meeting at this time, but he was able to drop by and touch base. He has been working on telerobotics with Mike Drews, and is in touch with Jeff H. Smith (A&R) and Ken McGraw (latency study) to coordinate with them. Mike will be making a proposal to Code ST for a study regarding the control of robots from the ground -- latency will be a big factor, since anything greater than 500 milliseconds causes a severe impact to control.

Sima Lisman

The next UDAWG meeting is tentatively scheduled for late September or early October.

Dave Carter/SSU thinks the payload pointing system is "out of the picture" for Code S, Based on the LaRC scrub results.

JPL and Boeing analyses show a discrepancy in modelling pointing system sensitivity to disturbances, but there is not enough of a change to cause concern. Bob Laskin has talked with Dean Jacot of Boeing.

Leigh Rosenberg

The information system architecture being used by the latency study has been sent to Chuck Ivie and Richard Masline for coordination.

Leigh spoke with Steve Wall/326, who used to work at JSC in Shuttle communications, who was able to fill him in regarding the actual latency experienced on Shuttle missions.

Ken McGraw spoke with Richard Sinderson/JSC regarding ISDN. ISDN is out since MSFC in charge of the information system, and they oppose use of ISDN. Also, the contractor declined to support ISDN, even though JSC seems to like it.

Leigh will be meeting with Jeff L. Smith later this week to coordinate tasks.

Mukund Gangal is presenting the strawman availability requirements document due to Level I and II. There was some discussion in the meeting regarding how availability requirements will be applied and how they will be quantified.

Leigh sent copies of the information system architecture he has been working with to Richard Masline and Chuck Ivie, who requested them.

Quintas Jett has started work for Paul on putting costs on the attached payload accommodation strategy options.

Marvin Moss

The *Space Station Freedom Strawman Availability Requirements* document draft has been distributed and is being reviewed this week.

Upcoming Meetings

August 24-25: OSSA Space Station Utilization Program Review at headquarters. Rob Staehle, Bob White and Hershal Fitzhugh to attend.

August TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September TBD: Loads and Dynamics Working Group meeting at TBD. Sima Lisman to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 16-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend.

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry to attend.

January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AVIATION WEEK & SPACE TECHNOLOGY, AUG. 14

"NASA-INDUSTRY TEAM DEFINES OPTIONS TO SALVAGE SPACE STATION PROGRAM" Edward Kolcum

"NASA is moving to salvage the space station with a reduced-scope program now being defined in sessions around the country by government experts and industry contractors."

AV WEEK reports there is a strong congressional consensus to make deep cuts in the next fiscal year, and NASA Administrator Richard Truly plans to review the list of cost-cutting options during a formal review about mid-September. Meanwhile, the NASA-industry assessment team will hold interim review sessions Aug. 15 and Sept. 1 at NASA headquarters.

The magazine reports the most significant change being considered is a reduction in crew size to four from eight, with correspondingly reduced requirements for consumables, systems and accommodations. Additionally, the options include a new preferred assembly sequence for 15 basing, outfitting and logistics Space Shuttle flights to put the station together.

AV WEEK says the options were generated by a NASA in-house "tiger team" that recently concluded a three-week study on ways to save the program if Congress chops funding by \$400 million. This is the amount that various committees have said they want to take out of the \$1.665 billion Space Station appropriation being considered by the House. The team is headed by W. Ray Hook of Langley Research Center.

The magazine says NASA managers are emphasizing the Hook group has not made Space Station decisions but rather has approached the job by trying to determine, "What happens if Congress takes \$400 million out of the program?"

WASHINGTON POST, AUG. 16
"SOVIETS TO REENTER MIR"

"Two Soviet cosmonauts will blast off from the Baikonur cosmodrome Sept. 5 to resume work aboard the orbiting space station Mir, abandoned for the last four months, Tass announced."

The POST reports the Soviet news agency quoted space training chief Maj. Gen. Alexei Lenov as saying two two-man crews were training for the mission.

AEROSPACE DAILY, AUG. 18
"LOCKHEED-BOEING TO COMPETE FOR CERV DESIGN STUDY"

"Lockheed Missiles & Space Co. and Boeing Aerospace & Electronics yesterday signed an agreement to compete as a team to develop a Crew Emergency Return Vehicle (CERV) for the Space Station."

The DAILY reports Rockwell International and McDonnell Douglas have also teamed to compete for the contract.

The paper reports Langley Research Center has developed lifting body designs and Johnson Space Center has studied ballistic and semi-ballistic designs for the CERV, which would be used to take Space Station astronauts back to Earth in an emergency.

AEROSPACE DAILY, AUG. 21
"NRC PANEL CALLS FOR STRONGER FOCUS ON CRITICAL STATION ISSUES"

"NASA must focus more attention on program management, testing and verification, and compatibility to avoid problems during assembly and operation of the Space Station, a National Research Council committee said Friday."

The DAILY reports the committee, listing nearly 50 major issues for NASA to address, also criticized congressional directives that add unneeded complexity to the station's development.

The DAILY reports the NRC said that diffusion of responsibility among NASA field centers and foreign participants makes program management more difficult than anything NASA has undertaken. The Space Station office "relies on one...office for its launches, another for its supporting technology, a third for its payloads and a fourth for its communications," the report said. "Diffusion of power and responsibility is extreme. The likelihood of swift action is small for any substantive matter."

The paper reports NASA said in a statement that the report was "useful and constructive."

"Since the time the report was written last November, the agency has identified and is working on a number of the same issues identified in the report," NASA said. "In other areas, the NRC's finding will help us assess and focus on important design and utilization issues as the program moves toward its preliminary design review next year."

The DAILY reports the committee said a Crew Emergency Return Vehicle is a necessity and criticized congressional directives that increase costs and complexity. Congress directed NASA to give the U.S. laboratory module a man-tended capability for materials processing experiments before the station is permanently manned and called for early use of the Flight Telerobotic Servicer.

AEROSPACE DAILY, AUG. 21
"REMOTE SENSING MODULE TO BE LAUNCHED TO MIR 1991"

"The Soviet Union is developing a remote sensing module for its Mir space station to improve monitoring of the oceans and atmosphere, according to a recent report in a Soviet scientific journal."

The DAILY reports the 20 metric ton module, called Piroda (Nature), will carry about three metric tons of scientific equipment and is planned for launch in 1991, according to an article in the March-April issue of a remote sensing journal published by the Soviet Academy of Sciences.

The paper says the instruments will monitor ocean surface temperature and wind speed, characterization of ice cover and aerosol and small gaseous components of the atmosphere.

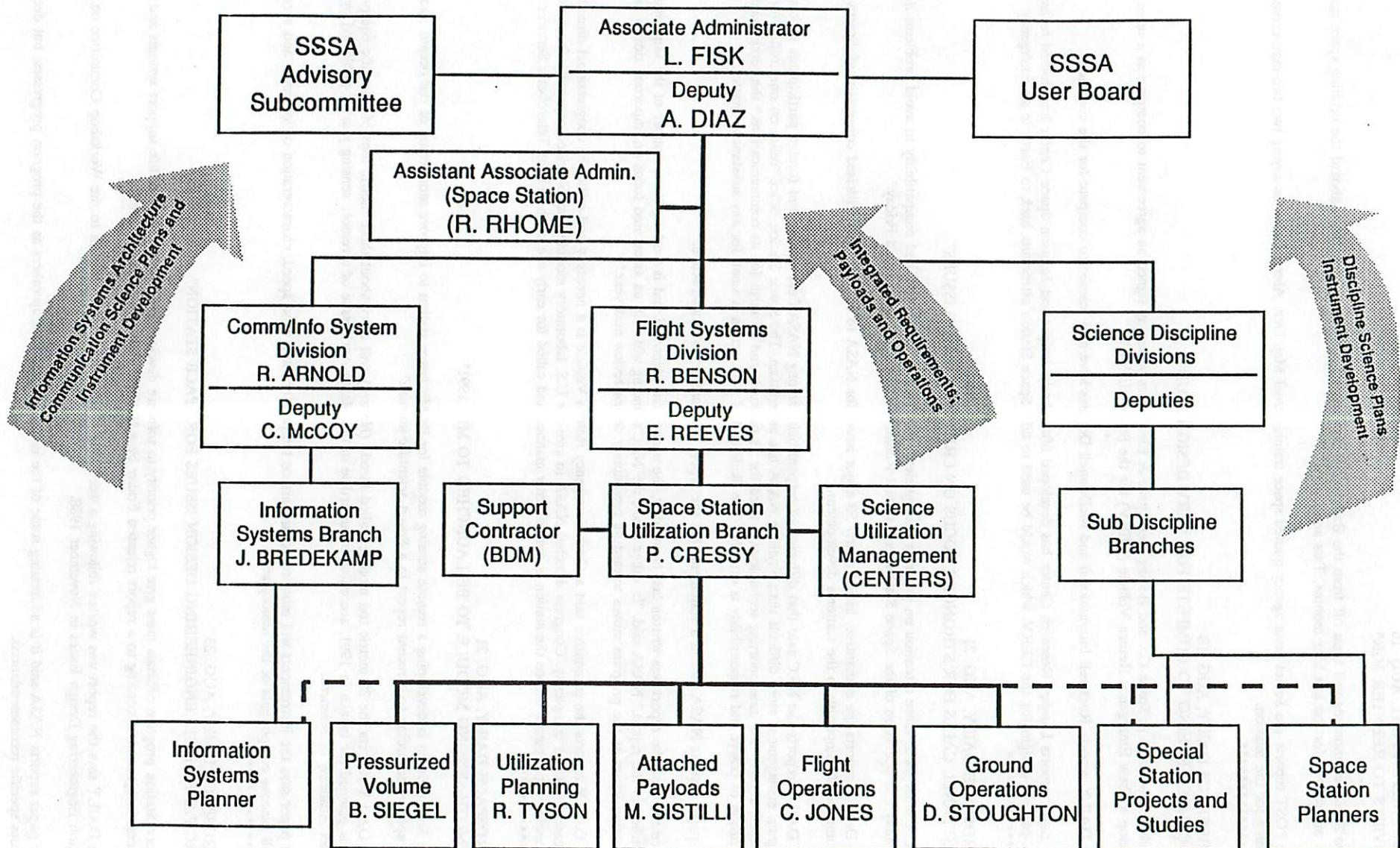
AEROSPACE DAILY, AUG. 23
"NRC PANEL LISTS ENGINEERING DESIGN ISSUES FOR SPACE STATION"

"Space Station program officials must give higher priority to software development and verification, life support systems and overall systems integration, according to a report released Friday by a National Research Council panel."

The DAILY says the report was written following a week-long presentation of the program to the Workshop Committee on Space Station Engineering Design Issues in November 1988.

The paper reports NASA said it is addressing some of the issues and will take up others as the program progresses, but declined to discuss specific recommendations.

OSSA SPACE STATION ORGANIZATION



Aug 7 1983

SST

From Fst. E. for on 12/12/83

RU

SPACE STATION DESCOPING RECOMMENDED CODE EM/SUM RESPONSE

- OBTAIN BEST POSSIBLE TECHNICAL UNDERSTANDING OF DESCOPED STATION AND ANY CURRENT STATION "ADD BACK" PLANS
 - KOHR'S AUGUST 4 PRESENTATION
 - OBTAIN COPIES OF THE WORK PACKAGE AUGUST 15-16 PRESENTATIONS
 - DEBRIEF BOB RHOME TUESDAY AM AUGUST 22
 - DEBRIEF BOB CLARK TUESDAY PM AUGUST 22
- ASSESS OSSA ATTACHED PAYLOAD COMPLEMENT AND PRESSURIZED PAYLOAD BUDGET CONSTRAINED TRAFFIC MODEL AGAINST DESCOPED STATION IN PREPARATION FOR THE SEPT 7/8 OSS BOARD MEETING.
 - DEFINE OSSA PAYLOAD COMPLEMENT THAT IS COMPATIBLE WITH THE DESCOPED STATION
 - PREPARE AN ABBREVIATED TRAFFIC MODEL ADDRESSING UPMASS, REDUCED POWER, AVAILABLE LAUNCH DATES, ETC.
 - ADDRESS OPERATIONAL LIMITATIONS TO THE EXTENT THAT IMPACTS ARE UNDERSTOOD (EXAMPLE: 4 MAN CREW IMPACTS)
- IDENTIFY AND PRIORITIZE OSSA MANDATORY "ADD BACKS"
 - PROVIDE SUPPORTING RATIONALE FOR EACH
 - CORRELATE OSSA PAYLOADS THAT COULD BE RESTORED TO FLIGHT TO SETS OF "ADDBACKS"
- DEFINE SYSTEM COMPONENTS AND DETERMINE ROM COSTS IF "ADD BACKS" ARE ON OSSA'S TICKET. NOTE: SOME "ADD BACKS" SUCH AS POWER, H2/O2 PROPULSION SYSTEMS, UPMASS, PRESSURIZED VOLUME, AND RESOURCE PORTS CAN ONLY BE PROVIDED BY STATION.

- LSE	- DATA ACQUISITION/STORAGE	- APAE
- PPS/ADS	- COOLING SYSTEMS	- FMS/PMMS
- OTHER?	- FLUIDS (WATER & GASES)	

SUM

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Ivie, Chuck	366	301-440	4-6045	CIVIE	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kelley, Jim	861	180-602	4-7068		
Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Levin, Dick	311	301-285	4-1253		
Li, Fuk	334	300-235	4-2849	FLi	
Lisman, Sima	343	198-326	4-4022	SLisman	
Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Martin, Benn	780	264-648	4-8263	Benn	NSCAT

	Sec	Mail Stop	Phone	NASAmail	TELEmail
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
McGraw, Ken	311	301-285	4-1121		
<u>Millard, Jerry</u>	<u>354</u>	<u>89-1</u>	<u>4-2898</u>		
Moss, Marvin	521	301-456	249-5252		
Mostert, Robert	311	301-285	4-1267		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Murphy, Gerald	521	301-460	4-6930		
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	301-285	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rathbun, David	343	198-326	4-8626		
Rayman, Marc	331	161-135	4-2544		
Robey, Judith	355	HQ/SU	8-457-1187	JRobey	JRobey
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FSchutz	
Sharma, Jayant	312	301-170	?-????		
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
Staehle, Rob	311	301-285	4-1176	RStaehle	
Steele, Laura	311	301-285	4-1284	LCrary	
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Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
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Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	782	264-648	4-2543	RZenone	RZenone
Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 91) ■ Printed 23 August 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

From *Bruce Wada*
311.5-248

28 August 1989

TO: Distribution
FROM: Randy Cassingham
SUBJECT: SS Utilization Team Minutes for 28 August 1989
PRESENT: Rob Staehle, Randy Cassingham, Marvin Moss, Jerry Olivieri, Richard Grumm, Hershel Fitzhugh, Paul Henry, Kristan Lattu, Kent Volkmer, George Goranson, Govind Deshpande, Bing Chen, John Bosley

*Please put me
on your distribution
list.
Thank you*

Next Meeting: 4 September 1989 at 10:30 in 301-271

Rob Staehle

Congratulations to everyone who worked on Voyager. Rob never thought he would see Chuck Berry sing "Johnny be Good" on the steps of Building 180...

Rob attended last week's AIAA Second International Conference on Solar System Exploration at Caltech. Rob has a copy of the rather lengthy program with abstracts; it is all that will be issued -- *the papers will not be published by AIAA*. Many ambitious plans were discussed by NASA, Soviet, Japanese and ESA representatives. There was not too much material on the space station discussed, but Rob was only there on Tuesday. Rob, Jim Burke/313 and Richard Dowling prepared a paper entitled "A Study of Locations for Bases Near the Lunar Poles." Richard Dowling presented the paper Thursday in a session on "Human Exploration".

Rob, Hershel Fitzhugh/374, Bob White/784, Bing Chen/784 and Valerie Thomas/521 attended the Code E space station utilization review meeting last week at headquarters. The review was focussed on formulating a response to the "Space Station Rescoping" study. The re-scoping is not to be referred to as "de-scoping", "the Langley study", or "Phase Zero". Also, it should be noted that the working assumption in the rescoping was that there would be *no utilization prior to PMC*. Change requests approved as of July 5th are considered part of the baseline. Others are considered "under consideration". Much of the advertised data system capability has been "de-scoped".

Bob Rhome/E ran the meeting well. He was the "user surrogate" during the re-scoping effort. He solicited input for Code E's request for "add-backs" for the station. Cost and schedule impact, and the budget tradeoffs necessary, will be required for add-back requests. There will be a Code S Level I/II meeting in Reston to prioritize the list of add-backs on September 7 and 8; inputs are due before the meeting. Some type of Senate appropriations committee action is expected around the 5th, with the results of the Level I/II meeting being timely for presenting options. Various versions of the budget are circulating on Capitol hill (ranging from \$1.65 to \$1.85 billion for FY90).

Two presentations on payload data bases were given at the meeting. Rob expressed our concerns about too many data base requests coming from various station organizations. Code E seems pretty much together on data bases; we will likely not support any more Level II payload database input requests, referring instead any requests to Code E, which will already have any necessary data. Also, our support to the Level II User Mission Requirements Information System (UMRIS) will be discontinued, except possibly for incidental consultation.

Rob, Bob White/784, Charlie Jones/MSFC, and Phil Cressey/E met to discuss the use of some FY89 money that had been slated for a detailee for Code EM. Since no detailee was ever actually requested, Cressey approved new use for the money for four tasks: a Dave Nichols/750

task to study the cost of space station remote payload operations from JPL; Valerie Thomas/521 has been approved to formulate implementation guidelines regarding payload classification; Kristan Lattu's/374 task regarding payload longevity has been approved, along with some other work; and Hershaw Fitzhugh's/374 support to Gary Wicks' Science Utilization Management team was approved. (All but Fitz need to submit SRMs for these tasks.) The pointing whitepapers issuance was quite timely, arriving just as pointing issues were being raised.

Rob talked with Steve Cook/ST, who praised both ST evolution studies tasks going on here. Rob passed out "Kudos" to Paul Henry, Jeff H. Smith, Jerry Millard, John Bosley and Randy Cassingham for jobs well done on these tasks. Steve also made a favorable comment regarding our responsiveness in comparison to other, unnamed centers... It is likely that Code ST funding in FY90 will be approximately as forecast for studies, but not necessarily for advanced development work.

ST task managers should attend the Station Evolution Symposium, to be held Oct 31 to November 2 at the South Shore Harbor Conference Center (near JSC). Paul and Jeff H. Smith will be presenting. Rob has a brochure for the symposium, and Paul is to receive several program packets. Contact Paul if you wish to attend.

Tony Ibbott/383 advises that during the week of Sept 11, there will be some neutral buoyancy work going on at McDonnell Douglas in Huntington Beach which we are invited to watch. John Bosley or Cate Heneghan will coordinate a trip. Those interested in attending should contact Tony or John.

Judith Ambrus/RS was ill, so Rob was unable to meet with her. He will be calling her this week. He left copies of various JPL Space Station Utilization documents with her.

Judy Robey is no longer with JPL. She was the detailee to Code SU, but has recently joined Bionetics and is working for Code EN. A replacement to SU has not yet been assigned.

Kristan Lattu

Kristan is incorporating comments from Charlie Chassay/MSFC into her payload longevity paper. Currently, she is trying to get some lifecycle costing data that has already been compiled by PE&A (by Bob Vuolo's group?)

Randy Cassingham

The contamination study report is a best seller. Nearly all of the first press run of 140 copies is now gone; 50 more are being printed. Fitz noted that the report arrived on Gary Wick's/MSFC desk in a very timely manner, and that Gary felt it would answer many of the questions about payload contamination which have been raised by the rescoping exercise.

Leigh Rosenberg & Jerry Olivier

Leigh is trying to finish up work on the latency task. He has made contact with MSFC; the ground architecture we're using is consistent with theirs. Leigh is on distribution for their work, which is being done by McDonnell Douglas. PE&A seems pleased with work done so far.

The rescoped information system architecture may have a significantly better latency time because it is simpler, being based on Spacelab and limiting distributed operations.

Govind Deshpande

Henry Kleine/363 presented the FROST model to Dick Laeser last week. Dick seemed pretty happy with the work so far. The FROST team will be presenting a new version in Reston September 13th.

Paul Henry

The \$60k add-on for the trajectory work will, again, be here Any Day Now... According to Camille Hayes, all FY89 money has now arrived.

Paul has been working to put cost estimates on the options discussed in the attached payload accommodations strategies report. Costing on pointing/tilt tables is finished, and work is coming along on the stand-alone kit (the power system part is done, the data link part will be done this week). SKP-like platforms have not yet been costed. Paul will transmit the preliminary results by the end of this week; the final report is due mid-September. Copies may go to Phil Cressey/E and/or Gary Wicks/MSFC (head of SUM team).

Paul spent most of last week working on the story boards for the trajectory video -- he has all but about one minute of the story boarding finished. The video will last about 5½ minutes.

Bing Chen

Bing attended the Code E review last week. He feels that the new configuration will put a larger burden on experiments, thus making them duplicate effort and causing a long-term burden (i.e., a higher overall cost). Rob noted that this was a priority in Code E's response: to end up with the lowest total cost to get the best possible accommodations. It would be "stupid", Robert Rhome said, to shift costs that would end up costing NASA as a whole more money.

Hershel Fitzhugh

Fitz is working with Gary Wicks/MSFC on formulating a prioritized list of add-backs (what rescoped items that need to be put back on the station): the top three for external payloads are 1) the 30 attached payload resource ports since they cannot be added back on later, 2) power, which has been reduced significantly, and 3) the data system (which has been cut to SpaceLab level, about 50 MBPS). Other concerns: the materials distribution system (water, gaseous nitrogen), contamination, and the possibility that the station won't always be manned. Also, the Flight Telerobotic Servicer will only be able to run on one plane, so it won't be able to travel very far. Thermal issues were of lower concern as payloads could be made to handle their own cooling. On the pressurized side, the top three were 1) power, 2) crew time (both IVA and EVA -- "if you ask for EVA, you won't get selected" -- external payloads should be robotically installable. If the crew level is indeed cut to four, they will likely work on one shift), and 3) the data system.

Fitz received a letter from Code EC regarding changes in the information system baseline. He will pass it on to Tom Handley.

According to Bob Rhome, the emphasis in PMC is on permanently manned *capability*. A crew will not necessarily be on the station continuously after PMC; only the capability for this is provided.

Dick Grumm

Dick has been on vacation. However, he noted that the October containerless processing workshop in Pasadena would benefit from the latency study results, if they are available by then. Jerry Olivieri responded that some information is still forthcoming for the latency work, but the final report should be available by October, and offered to present the results to the workshop (he will check with PE&A to confirm that this is ok).

Marvin Moss

Marvin has finished his review of the strawman availability requirements document.

John Bosley

John has been working on the in-space vehicle processing task report. Others on his team have been on travel and/or vacation, so he'll have more to report next week.

Upcoming Meetings

September TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September TBD: Loads and Dynamics Working Group meeting at TBD. Sima Lisman to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 16-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

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January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, AUG. 28

"WHAT'S AHEAD"

The Soviet Union's new space station Mir-2 will accomodate nine to 12 crewmembers and weigh 300 metric tons. AEROSPACE DAILY quotes Aleksandr Dunayev, head of the Soviet Space Agency Glavkosmos regarding the planned replacement of the current Mir station.

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Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Arnett, James	521	301-466	4-4452		
Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
Borden, Chet	311	301-285	4-1238		CBorden
Breckinridge, James	385	169-314	4-6785		JBBreckenridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	301-285	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
Cassingham, Randy	311	301-285	4-1273	RCassingham	
Chen, Bing	???	67-201	4-5353	CPChen	
Coffin, Dick	317	233-208	4-3730	RCoffin	
Das, Radhe	342	303-300	4-9736		
Deshpande, Govind	311	301-285	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Doane, Jim	120	Reston	8-457-7210	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	521	301-460	4-4952		
Garrett, Hank	521	301-456	4-2644		
Glavich, Tom	343	185-103	4-3952		
Goranson, George	521	122-113	4-2809		
Gray, Bill	311	301-285	4-1090	BillGray	
Grumm, Richard	355	183-401	4-9267	RGrumm	
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	301-285	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Houseman, John	385	89-1	4-1601		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	301-440	4-6045	Clvie	
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Zygielbaum, Art	750	180-701	4-3564		

For additions or changes to this list, contact Randy Cassingham

(total 91) ■ Printed 29 August 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.5-260

11 September 1989

TO: Distribution

FROM: Randy Cassingham 

SUBJECT: SS Utilization Team Minutes for 11 September 1989

PRESENT: Rob Staehle, Randy Cassingham, Bing Chen, Jerry Olivieri, Jeff L. Smith, Tom Handley, Sima Lisman, Marvin Moss, Paul Henry

Next Meeting: 18 September 1989 at 10:30 in 301-271

Rob Staehle

Rob passed around a chart showing how crewhours will be affected with the rephasing. The good news is that there will be less microgravity disturbance...

The latest word on funding from SSR: no news. All task managers should have a memo (dated 8/10) from Mike Devirian showing how much money is left in PE&A accounts. At least for now, that's it. Accounts will be turned off if they run out early. Code E funds look ok, but money isn't expected until December. Managers on Code E tasks need to run new SRMs this week; follow instructions carefully!

Code ST funding still looks "hopeful", but there is no firm news on it. ST accounts are also in need of careful management; funds should cover upcoming travel to the evolution symposium.

Fitz is on vacation. Before he left, he delivered a copy of the Science Utilization Management (SUM) response viewgraphs to headquarters on the impact of the rescoping on OSSA. Thanks to Kristan Lattu and others who provided input. Rob has a copy of the report if anyone wants one.

Per Robert Rhome/E, any instruments needing EVA should be *deferred by four years or cancelled* unless it is of **very** valuable scientific priority. He said that EVA is "dangerous, disruptive, and expensive" and that all payload interactions should be via robotics.

Tom Handley and Jeff L. Smith should consider briefing Gary Wickes/MSFC on our work on data and information system modelling. He expressed interest in such work. Gary chairs the SUM activity.

Jerry Olivieri

Wrapping up the latency report. The date for the final presentation is still up in the air... probably early or mid-October.

Jeff L. Smith

Jeff is giving a demo of the Freedom Operations Simulation Testbed (FROST) at PE&A on Wednesday. It looks like it will be well-attended; SE&I and SSU are sending people, and Cressy/E was invited. The latest version, due for delivery October 1, is on track.

Jeff noted that Carolyn Griner, Dick Halpern's (acting) replacement at Code SU, is very good and pleasant to work with.

Tom Handley

Tom met with the Reston people last week, but there is not commitment for next year yet.

Stu Friesma (our Code SU detailee) wants to get some data base configuration management planning work done for Level 1, which will carry them into next year. Funding for this year is coming through JPL's Institutional Computing and Information Services Office (170), where Stu used to work.

Sima Lisman

The Loads & Dynamics working group meeting will be held at JSC on the 27th & 28th. Sima will not be presenting -- Rob suggested that they do their best to get on the agenda and present their disturbance modelling work. Rob noted that Bette Siegal/EM said that a vibration control plan was needed for payloads, crew and systems -- our work may fit in well with their needs, so current results should be communicated as much as possible and as quickly as possible. She or Phil Cressy/EM might be interested in funding some of our disturbance work.

Ed Wong, David Rathbun and Ken Smith/35 presented a paper on "A Pointing System Design Concept for Space Station Attached Payloads" to the AIAA Guidance, Navigation and Control conference held in Boston August 14-16. Randy Cassingham has a copy.

Marvin Moss

The Weighted Availability Allocation Procedure document was delivered to Mukund Gangal.

Marvin has finished his work and will be leaving the Laboratory as of September 21 unless some other work presents itself.

Paul Henry

First part of the Accommodations costing work has been delivered to PE&A. The second half (SKP and reconfigurable work platform) will be finished as early as this week.

Paul is planning to go see some neutral buoyancy tank work this week at McDonnell Douglas -- they will be utilizing their mobile work platform, so Paul might gain some insight on how well it works. The best day for the trip will probably be this Tuesday, with Thursday the likely second-best. MDSSC has scheduled tank work all week. Contact Cate Heneghan (x4-1272) or John Bosley (x4-1754) for details.

The high declination departure work for Code ST is going quite well. Departure is set for 2005 for the asteroid Eros. Andre Sergeyevsky is working on writing up his results for the final report.

The Mars video is progressing. So far, according to the story boards, it is too long, so Paul will be working on trimming it.

Paul signed up as a guinea pig for Section 311's System Design Tradeoff Model (SDTM) training dry run.

Upcoming Meetings

September TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September 13: FROST demo at PE&A. Jeff L. Smith to present.

September 26: Vibra-acoustics Working Group meeting at JSC. Sima Lisman may attend.

September 27-28: Loads and Dynamics Working Group meeting at JSC. Sima Lisman or Bob Laskin to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

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January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

WALL STREET JOURNAL, SEPT. 6

"FALLING NASA SATELLITE MAY HAVE LEGAL FALLOUT"

"As an 11 ton NASA satellite falls to Earth, U.S. lawyers prepare to explore the next frontier--the legal one."

The JOURNAL reports NASA says the Long Duration Exposure Facility is expected to re-enter Earth's atmosphere no later than January 1990. In the event of any damage caused by falling debris, the U.S. would be bound by the 1973 Convention on International Liability for Damage Caused by Space Objects, which holds the state that launched the satellite liable. Claims would be handled through diplomatic channels.

The paper reports Gary Tesch, NASA's deputy general counsel, said the agency will honor its legal obligations but the LDEF is unlikely to cause damage. A mission to retrieve the satellite is scheduled for December.

AEROSPACE DAILY, SEPT. 7

"INTERNATIONAL PARTNERS UPBRAID NASA ON STATION DESCOPING PLAN"

"The European Space Agency, Japan and Canada told NASA Tuesday that they expect the U.S. to live up to its agreements with them before deciding how to downscale the Space Station in the face of a potential \$400 million budget cut."

The DAILY reports the program's international partners met with NASA officials in Washington as part of the first Space Station Cooperation Review of the intergovernmental agreements signed by the participants a year ago.

The paper reports Space Station officials at the Reston program office are meeting with industry and international officials today and tomorrow to outline their proposed descoping plan, developed over the summer by a team led by W. Ray Hook of Langley Research Center.

"It's very important to us that the international character of the station be recognized and be maintained," one foreign official said in an interview yesterday. "If there is a need to make changes to the Space Station as currently conceived, then we feel it should be done within the context of the agreements we signed and the decision should be taken by the four partners attempting to achieve consensus. If there is any pain to be borne, it should be shared in an equitable manner."

The DAILY reports the proposals include reducing crew size to four from eight, cutting power to 38 kilowatts from 75 Kw, switching to a cryogenically supplied open life support system, limiting proximity operations around the station to the Space Shuttle orbiter and reducing provisions for attached payloads.

The paper says NASA's decision not to include international representation on the Langley review team resulted in some foreign officials questioning what priority they would receive when the final descoping plan is sent to NASA Administrator Richard Truly later this month. The partners, in a joint statement released after a meeting at the State Department Tuesday, said they would continue to seek approval for funding at levels sufficient to continue with the current baseline station design and construction schedule.

"The European, Japanese and Canadian partners expressed concern that budgetary and other constraints in the U.S. not adversely affect the program and called on the U.S. to review these constraints with the objective of maintaining the program as originally agreed," the statement said.

NEW YORK TIMES, SEPT. 7

"ORBITING RUSSIANS PREPARE TO OCCUPY STATION"

"Two Soviet astronauts orbited the Earth today (Wednesday) and prepared to climb aboard the space station Mir after a four month break in the Soviet manned space program forced by failures and disputes over costs."

The TIMES reports scientists at the Baikonur Cosmodrome applauded when the crews TM-8 capsule reached orbit nine minutes after liftoff, and official reports said all was well with the crew. The capsule dropped two booster rockets, one carrying a 150 foot high advertisement for an Italina insurance company.

The paper reports the capsule is to dock on Friday with the Mir station. The government newspaper Izvestia said two new modules will be added 60 square yards to the living area in space, "and more important, sharply increase the research capabilities of Mir."

Space Station Utilization Team Weekly Meeting Minutes

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Lisman, Sima	343	198-326	4-4022	SLisman	
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Schober, Wayne	881	180-603	4-8581	WSchober	
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Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
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For additions or changes to this list, contact Randy Cassingham

(total 91) ■ Printed 11 September 1989

311.5-262

18 September 1989

TO: Distribution *RC*

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 18 September 1989

PRESENT: Rob Staehle, Randy Cassingham, George Goranson, Richard Masline, Hershal Fitzhugh, Kristan Lattu, Sima Lisman, Paul Henry

Next Meeting: 25 September 1989 at 10:30 in 301-271

Rob Staehle

The final Congressional budget for the station will likely be what the Senate appropriation committee just passed, the middle-of-the-road figure of \$1.85 billion (the House earlier approved \$1.65 billion, the Bush administration had asked for \$2.05).

Three copies of Division-signed SRMs for the continuing 345- accounts are due today. Sima's 345-10203 account is now out of money, and was closed on 9/15.

Mike Devirian was quite impressed by the Disturbance Management Model that Sima Lisman created. Mike Urban presented to him in Reston by connecting to the JPL/Pasadena Vax machine it runs on. Rob presented Sima an IOU for one "Kudos" bar. Several people at the meeting were interested in getting a report on the model's results. Sima said she was working on a viewgraph presentation for the Loads and Dynamics Working Group; an information page from that is attached.

Rob had a long talk with Dick Laeser/PE&A on Friday. The preliminary news is that Reston funding for Pasadena Utilization work will continue at 1/2 to 2/3 of the level of FY89 work; with the growth in Code EM funding, our Utilization work will probably continue at about the same level as in FY89. Tasks with the greatest projected relevance to PE&A's emerging new role will be continued; some current tasks will be shut down, but some new tasks are likely to be funded as PE&A's role is refined. Until more is known, Mike Devirian's August 10th memo (outlining what should be spent on PE&A tasks) still remains in effect. Other particulars and background were discussed at the meeting.

Richard Masline

Dick is making a first cut of the ground architecture to deliver to FROST (Freedom Operations Simulation Testbed) next week. A proposal is in to Code EM to work up some algorithms on the Cray supercomputer to perform phenomenon recognition, image identification and other compression techniques and algorithms to see if it is possible to reduce the required space-to-ground bandwidth (especially for microgravity high rate/resolution imaging payloads). An MPP (massively parallel processor) developed for GSFC is being put on a chip with a 10 Gbyte bandwidth; this could be applicable to the algorithms that come out of the Cray. JPL's Hypercube computer may be applicable to some of the problems, but difficulties have been encountered in some areas.

Hershaw Fitzhugh

Fitz just returned from vacation.

Several JPL people, including Tom Handley, are heading for a telescience workshop at ARC this week. The workshop will try to facilitate coordination of the work being done at the various Centers. Joseph Bredekamp/EC will be there, so Rob is hoping that we will have good representation from JPL. Fitz will probably attend, or send a representative for JPL's OSSA/SUM activity.

Kristan Lattu

Kristan is working on finishing up the payload life extension paper, keeping the "rephasing" in mind. The work is supported by Code EM for its Science Utilization Management team.

Sima Lisman

Sima has been talking with the chair of the Loads and Dynamics working group at JSC to try to get a presentation of the Disturbance Management Model on the agenda for the 9/27-28 meeting.

Paul Henry

Paul sent the abstracts off to Steve Cooke/ST for his and Jeff H. Smith's presentation to the Evolution Symposium in October.

Paul and Andrey are starting the writeups for the final report to Code ST on ST-funded FY89 work. The high-declination work will probably be finished in time to get in the report.

Paul has a meeting tomorrow with personnel in 312 to kick off the Mars entry and Earth return work.

Paul is working with Brian Pritchard/LaRC to get production on the video started. Paul wants Pritchard's "stamp of approval" on the storyboards before actually starting production.

A meeting with LeRC and MSFC regarding contamination is still pending. This hampers our keeping Jerry Millard and company on staff for FY90.

Paul visited McDonnell Douglas on Wednesday to see a demo of a partially deployable/erectable structure in the neutral buoyancy tank. Some of the simplest operations were quite difficult to perform in spacesuits (and in the pseudo-space environment of the tank). They were using the mobile work platform, which was quite interesting. Two "astronauts" were in the tank, one in a foot restraint, the other moving about, tethered to the mobile work platform. It was quite easy for the tethered man to move around, and he easily secured himself to various spots on the platform. A video tape was made of the test; they promised to send a copy to Paul. They were doing assembly of a trusswork -- something like an LDR assembly.

Paul has several copies of the small brochure on the "Space Station Evolution: Beyond the Baseline -- First Symposium on the Evolution, Space Station Freedom" being held October 31-November 2 in Houston, should anyone want a copy.

Upcoming Meetings

September TBD: Contamination study presentation to Kohrs and/or Lenoir. Jerry Millard and Paul Henry to attend.

September 26: Vibra-acoustics Working Group meeting at JSC. Sima Lisman may attend.

September 27-28: Loads and Dynamics Working Group meeting at JSC. Sima Lisman or Bob Laskin to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer and Rob Staehle to attend.

January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19 (new date): Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, SEPT. 11

"STATION DESCOPING PLAN PUTS BURDEN ON INTERNATIONAL PARTNERS"

"International partners in the Space Station program said the descoping plan presented by NASA last week puts most of the burden on them and threatens chances of the U.S. playing a leadership role in future international space projects."

The DAILY reports one foreign official said the plan, which calls for reducing crew size and halving electrical power capacity, among other changes, "went beyond the U.S. just looking at the options that might exist." He said it presented international partners with a design that allows for "tinkering around the edges" but little room for debate. "Had it really been a set of options, we would have had no complaints whatsoever," the official said.

The DAILY reports one official said that depending on the results of last week's review of the Langley Research Center recommendations, the international partners, if still dissatisfied, are considering using dispute resolution procedures outlined in the Space Station intergovernmental agreement to call another meeting.

"That would have, among other things, more and a lot different press attached to it, and I can't imagine that being particularly positive press to the U.S.," the official said. "There's talk about doing a couple of big missions in the early part of the 21st century, possibly with the Soviet Union, the other big space power," the official said. "If the U.S. can't work with their allies--their military and economic allies--who the hell can they work with?"

HUNTSVILLE TIMES, SEPT. 14

"FIRM GIVES \$275,000 FOR PROJECT" Martin Burkey

"The Space & Rocket Center announced plans today (Thursday) to build a full-size model of NASA's Space Station Freedom next year, starting with a \$275,000 pledge from United Technologies Corp."

The paper reports the \$2 million mockup, which will measure about 500 feet long from the tips of its solar panels, will be built next to the museum's full-size Pathfinder Space Shuttle exhibit.

"The station represents the nation's will to conceive and execute bold programs on the frontier of space," said center director Ed Buckbee. "We believe that our model will demonstrate and represent that resolve."

The paper reports Buckbee said the \$2 million estimate depends on how close the mockup is to be made to resemble the real thing. About a year of study, design and fund raising remains before the museum can begin construction. The timetable also depends on a NASA redesign program.

"We will not break ground until NASA has confirmed the configuration" Buckbee said. "Of course, funding will have to be obtained during that period. We will seek that from our private corporate partners, the State of Alabama and NASA and others who have shown an interest in the station."

AEROSPACE DAILY, SEPT. 18

"SENATE APPROPRIATIONS PANEL APPROVES \$12.3 BILLION FOR NASA"

"The Senate Appropriations Committee, calling NASA's Space Station descoping plan 'unacceptable,' eliminated funding for the National Aerospace Plane to protect the station, according to the committee report released Friday."

The DAILY reports a floor vote on the VA-HUD-independent agencies appropriations bill, which includes \$12.3 billion for NASA, is expected as early as today. It will likely be sent to a conference committee later in the week to iron out differences with the House version.

The story reports the committee approved \$5.367 billion for research and development, \$4.639 billion for space flight, control and data communications, \$290 million for construction of facilities, \$1.855 million for research and program management and \$8.8 million for the Office of Inspector General.

The DAILY reports NASA, expecting at least a \$400 million cut to its \$2.1 billion request for the Space Station, conducted a review that proposed cutting station electrical power to 37.5 kilowatts from 75 Kw and halving crew size to four.

"A Space Station descoped in this fashion would substantially reduce the capacity of the program to meet the challenges required to carry out the President's initiative for long-term space exploration," the committee report said. "It would dramatically reduce the early scientific capability (and) could have a serious, adverse and permanent effect on the ability of the U.S. to conduct joint scientific projects with our international partners in Europe, Canada and Japan."

The DAILY reports the committee report said the \$1.85 billion approved for the Space Station will allow it to have 75 Kw when it reaches permanently manned capability in mid-1998. All \$127 million requested for NASP was deleted to offset the station funding.

"The committee has reluctantly taken this step because of pressure on the NASA budget due to the subcommittee's 302 billion (total funding) allocation," the report said. "In addition, the House (NASA budget) figures come at the expense of adequately funding the station at a level which will enable it to maintain sufficient power and scientific capability for use early in its scheduled deployment."

The DAILY reports the committee also deleted \$7 million requested for Crew Emergency Return Vehicle studies in favor of using \$8 million carried over from last year.

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For additions or changes to this list, contact Randy Cassingham

(total 95) ■ Printed 18 September 1989

SPACE STATION FREEDOM DISTURBANCE MANAGEMENT TOOL

- THIS IS A LINEAR ANALYSIS AND SIMULATION TOOL THAT CAN PROVIDE TIME HISTORY PLOTS AND OTHER VALUABLE INFORMATION ABOUT THE SPACE STATION FREEDOM DISTURBANCE ENVIRONMENT
- THIS TOOL IS CURRENTLY UNDER DEVELOPMENT BY THE GUIDANCE AND CONTROL SECTION (SECTION 343) AT THE JET PROPULSION LABORATORY AND WILL BE UTILIZED BY SPACE STATION FREEDOM PROGRAM OFFICE AT RESTON FOR DESIGN AND PLANNING PURPOSES. IT IS WRITTEN IN PROMATLAB AND CURRENTLY RESIDES IN SECTION 343 VAX 11/780.
- THIS TOOL USES A STANDARD NASTRAN BASED STATION MODEL, STANDARD DISTURBANCES INCLUDING : TREADMILL, INTRAVEHICULAR AND EXTRAVEHICULAR CREW KICKOFFS, THRUSTER PULSING, CREW SNEEZE, CENTRIFUGE AND EARTH POINTED ROTATING PAYLOAD (LAWS), AND USER SPECIFIABLE DISTURBANCES INCLUDING : SINUSOID, RANDOM NOISE, AND IMPULSE
- IT CURRENTLY UTILIZES 11 CONFIGURATIONS WITH COMBINATIONS OF THREE STRAWMAN PAYLOADS, HARDMOUNT OR ISOLATED PAYLOAD INTERFACES , AND THREE POINTING DIRECTIONS
- THE TOOL IS COMPLETELY MENU DRIVEN WITH GRAPHICS CAPABILITY
- THE TOOL USER CAN SPECIFY SINGLE OR MULTIPLE DISTURBANCES ENTERING VARIOUS SPACE STATION MODEL INPUT NODES
- THE TOOL CAN SIMULATE AND PRODUCE (TOOL USED IN FORWARD DIRECTION).
 - PPS LINE OF SIGHT POINTING ERROR : TOTAL ANGLE BETWEEN THE ACTUAL PAYLOAD POINTING DIRECTION AND THE DESIRED POINTING DIRECTION EXPRESSED IN OVERALL ANGULAR DISPLACEMENT (ARC-SEC)
 - PPS POINTING JITTER : VARIATION OF TOTAL ANGLE OF THE ACTUAL POINTING DIRECTION OVER A ONE SECOND TIME INTERVAL (ARC-SEC / ONE SEC)
 - LABORATORY MODULE ACCELERATION - ALL AXES (MICRO-G)
- IT CAN ALSO ACCEPT DESIRED VALUES FOR ANY OF THE ABOVE RESULTS AND PROVIDE LIMITS ON DISTURBANCE SOURCES IN ORDER TO MEET THE DESIRED VALUES (TOOL USED IN REVERSE DIRECTION)
- TYPICAL RUN TIMES ARE ON ORDER OF A FEW MINUTES (FOR 2-3 INPUTS) AND RUNS CAN BE MADE IN ANY ORDER
- DEVELOPMENT SCHEDULE
 - PRELIMINARY RELEASE : 3/90
 - GENERAL RELEASE (VERSION 1.0) : 9/90

JET PROPULSION LABORATORY**INTEROFFICE MEMORANDUM**

311.5-268

25 September 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 25 September 1989

PRESENT: Rob Staehle, Randy Cassingham, Paul Henry, Sima Lisman, Jeff L. Smith, Richard Levin, Bing Chen, Richard Masline, Tom Handley

Next Meeting: 2 October 1989 at 10:30 in 301-271

Rob Staehle

John Bosley was married this weekend in northern California - congratulations to him and Peggy. Randy and Paul went up to cheer him on.

If the \$1.85 B budget for space station is indeed approved, it is likely that some of the items "rescoped" (removed) from the station will be added back in. The partners are very unhappy with the rescoping; ESA has presented an interesting alternative to the rescoping: launching JEM and Columbus early, deferring the US lab module for a couple of years. Since the US already have the use of half of their rack space, this would likely actually benefit users. NASA has not yet responded to the suggestion.

Welcome FY90 -- today starts Caltech's fiscal year. Dick Laeser/PE&A has authorized continuation of five tasks so far for FY90. Other tasks should still plan on closing out per Mike Devirian's August 10th memo. The five continuing tasks are: FROST (Freedom Operations Simulation Testbed) development (Jeff L. Smith); disturbance model development (Sima Lisman & Bob Laskin); EEIS (End-to-End Information System) study support (Tom Handley); Accommodation Growth Studies, (Paul Henry); and Ad Hoc Support (Rob Staehle). It is likely that more tasks will be opened as time goes on, but these five are Dick's highest priority after consultation with Mike and Rob.

Dennis Kearn or Terry Charton will be attending the Loads and Dynamics working group meeting this week, in addition to Sima. They will also attend the vibro-acoustics splinter group meeting Tuesday. Two goals of the attendance are to spread word of our Disturbance Modelling task and to learn the likely requirements for JPL attached payloads.

There was quite a bit of discussion in the meeting regarding the Space Station Evolution symposium, to be held in Houston October 31-November 2. So far, several people from JPL are planning to attend and/or present, including Paul Henry, Jeff H. Smith, Kent Volkmer and Rob Staehle. It was not clear if there is to be a representative of Wayne Schober's work in TAP.

Accounts 510-20207 and 510-20208 have been closed.

Tom Handley

Tom attended a "Telescience Testbed Kickoff meeting" held at ARC last week. It's a Code EC-funded activity to develop requirements for tele-operations, -design, -collaboration, etc. Tom is looking into their goals to see how we can get involved in the activity. A summary meeting to cover the ARC proceedings is being set up at JPL because of the interest expressed by many people here; Darryl Rasmussen/ARC will attend and present. Also, in late March or early April, a Telescience Symposium "for the Space Station Era" will be held (location TBD).

According to one the meeting's attendees from MSFC, Marshall is ready for station data handling operations using the SpaceLab architecture. On the other hand, Tom notes, many of the details of the ground system architecture are completely lacking -- some of the boxes on the chart don't have any specifications to them.

Dick Masline

Dick is working on a preliminary ground architecture to run with FROST, based on work done by the FROST people, and has delivered a first cut to Henry Kleine. Dick is going through it to make corrections and enhancements. Unlike the flight system, which is in good shape, the ground system is still a problem since the various Centers have not agreed on specifications. The best model so far is from ESA, but this is not guaranteed to match US specifications. There are big discrepancies between Levels II and III.

In an exercise during the Multilateral Utilization Study (MUS), the IVA time requirements from all payloads was totalled, and it came to more than 200 hours per day -- which would take about 50 astronauts to accomplish. The conclusion: experiments must be much more automated, which will greatly increase the strain on data systems.

Bing Chen

Last week, Bing and Dick Grumm attended the fifth ISET (Intercenter System Engineering Team) meeting. ISET, led by LaRC, is reviewing station facility and experiment component commonality for Code EN. Bing has just put together a team to work on commonality issues, focussing on the MCPF (Modular Containerless Processing Facility) and DPM (Drop Physics Module) and how they will fit together with other payloads that other Centers are working on. They will meet again in December or January.

Jeff L. Smith

When Dick Masline delivers the revised ground architecture, FROST will be ready for delivery. The flight architecture is already well defined and in place.

Richard Gajewski will be here this week. While he will no longer be assigned to PE&A, in his new position he will still be assigned to flight data system architecture issues, from a different level II organization, still with EIC.

Because of the differences between the PRD and PDRD user sets, both are available in FROST for modelling. Also, because of the uncertainties and differences in ground architecture specifications, there also may be several optional ground architectures available on FROST for modelling. Since MSFC seems to be more interested in using the Spacelab system than designing a new one, and since they have the responsibility for data systems, it is unlikely that a data system that users will be completely satisfied with will emerge. It is possible that Code E will have to take over the effort as a payload accommodation issue if they are going to get a system more capable than Spacelab.

The System Design Tradeoff Model (SDTM) task held a two-day training course last week, mainly for Level II. It was quite successful.

On Wednesday, Jeff, Rich O'Toole, David Porter and John Ledyard are meeting with Moustafa Chahine to talk about resource allocation policy for Code E users.

Jeff is presenting at an October 18 briefing with Bill Lenoir regarding pricing policy. Lenoir will likely decide to go with a demand-based pricing policy -- as Jeff and his team suggest -- and that a task to plan its implementation will be assigned to JPL.

Dick Levin

Dick is also having a problem with the lack of a ground system architecture for the latency study, and has known that this would be a problem for several months.

Dick will be presenting his final briefing on FY89 latency task activities to PE&A September 28. The briefing will center on an estimate of the minimum possible system latency, based on the Gajewski ground system architecture and various assumptions made by the team.

Sima Lisman

Sima is heading to the Loads and Dynamics working group meeting this week. She is on the agenda to present an overview of the disturbance modelling system. Rob suggested that the disturbance model be demonstrated here in the next few weeks; Paul and John Bosley would be quite interested in seeing it, and would benefit by knowing the details of it when they interact with others.

Paul Henry

Paul had a kick-off meeting with Johnny Kwok and others in Section 312 last week to start new work on Space Station Vehicle Deployment. They have already run plots for several manned departure opportunities for 2015 and beyond. They are looking at ways to model the free-return flyby for aborted unmanned Mars missions.

The FY89 final report to Code ST on ST-funded FY89 work is coming together. It will be going to Randy the week of October 15 for editing and production.

Phil Fuson/MDSSC gave Paul information on costs for the mobile work platform. Because the figure offered was extraordinarily low, Paul will try to pin the costs down to see what all they include.

Paul will be meeting with JPL audio visual people to work on the Mars departure video.

Randy Cassingham

Randy was able to obtain copies of the third edition of "Station Break", a bi-monthly newsletter published by Code S. A copy is enclosed with the minutes.

Randy also notes that the *Solar System Exploration Mission Staging and Contamination of the Space Station Environment from STS Proximity Operations* papers are "best sellers" and have been reprinted. Contact Randy if you need extra copies.

Upcoming Meetings

September 26: Vibro-acoustics Working Group meeting at JSC. Dennis Kearn or Terry Charton to attend.

September 27-28: Loads and Dynamics Working Group meeting at JSC. Sima Lisman to attend.

September or October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer and Rob Staehle to attend.

January 9-12: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19 (new date): Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

Recent Space Station-related Items from Code L's "Daily News in Brief" (Typos not corrected...)

AVIATION WEEK & SPACE TECHNOLOGY, SEPT. 18

"NASA ACCELERATES LUNAR BASE PLANNING AS STATION CHANGES DRAW EUROPEAN FIRE" Craig Covault

"The National Aeronautics and Space Administration has mobilized several hundred personnel to develop an initial Moon base plan to fulfill President Bush's call for development of a U.S. manned lunar outpost as a stepping stone to Mars."

AV WEEK reports NASA Administrator Richard Truly is to brief the House space science subcommittee on the definition project Sept. 19. (Note: Now delayed until Sept. 26th) "It's a fairly massive effort across NASA," Truly said.

The magazine reports NASA this week also plans to hold a midterm review to assess progress on the lunar/Mars definition activity. The core of the lunar base assessment is at Johnson Space Center. Truly said the entire effort involves several hundred NASA and contractor personnel agency wide. The definition effort was initiated in response to the President's July 20 speech, which declared a lunar base and future Mars mission as the next major U.S. space goals after the Space Station.

AV WEEK says most of the current NASA effort is focused on development of a U.S. lunar outpost devoted to science, but it also includes studies to ensure the lunar development would support manned Mars technology needs.

AV WEEK reports specific lunar base cost and schedule issues are being considered by a White House National Space Council review that is also under way and being coordinated with NASA. Truly recently briefed Vice President Quayle on the NASA effort. Input from both the council and NASA assessments are to be given to President Bush in time for an implementation strategy to be announced during his 1990 State of the Union Address in January or February.

The magazine reports Truly said in addition to supporting White House cost and schedule decisions, the NASA effort also will provide the agency with an engineering baseline from which to evolve more specific lunar base plans over the next several years. NASA's Office of Exploration, headed by Frank Martin, is coordinating the technical assessments in the study.

SPACE NEWS, SEPT. 18

"NASA SUBMITS PRELIMINARY 1991 BUDGET REQUEST: \$14.5 BILLION" James Fisher

"NASA has asked the White House Office of Management and Budget (OMB) to approve a 1991 budget request in the range of \$14.5 billion that includes some growth for the space station program, according to industry and NASA sources."

SPACE NEWS says NASA officials expect to update their request on September 29 with new Space Station figures, and again in November after the completion of a 90 day study of the lunar and Mars exploration initiative proposed by President Bush. The budget proposal is contained in a September 1 report to OMB.

The paper reports Richard Kohrs, the Space Station program director, said NASA will probably seek \$2.6 to \$3 billion in 1991 for the program depending on the final amount approved for 1990.

SPACE NEWS says two major new programs in 1991 are expected in the space science budget, including a formal go-ahead for the Earth Observing System (EOS) and a program of new Earth probes. Both are part of NASA's proposed Mission to Planet Earth program of global environmental studies.

AEROSPACE DAILY, SEPT. 22

"SEN. HEFLIN WANTS SPACE STATION BUDGET SUMMIT WITH WHITE HOUSE"

"Sen. Howell Heflin (D-Ala.) called for a Space Station summit agreement between Congress and the Bush Administration to avoid annual 'life or death' struggles on the program budget."

The DAILY reports Heflin, speaking on the Senate floor during debate on the HUD-independent agencies appropriations bill for FY90, said an agreement would allow NASA to concentrate on developing the station instead of fighting for its budget.

"I believe that we need a summit agreement in order to place some stability in this all-important program and not have these yearly life or death fights on the Space Station," Heflin said. "With a Space Station summit we can get on with the station as it should be—a robust and capable laboratory in permanent Earth orbit with strong international participation..."

The DAILY reports Heflin said he has discussed the proposal with President Bush, who appeared "very receptive," and with Office of Management and Budget Director Richard Darman, National Security Advisor Brent Scowcroft and White House Chief of Staff John Sununu.

The paper says the Senate appropriations bill includes \$12.3 billion for NASA. The bill will be sent to a conference committee to iron out differences between it and a House version approved in July. The Senate version includes \$1.85 billion for the Space Station, compared to \$1.65 billion in the House bill. NASA requested \$2.05 billion for the program.

"While I would prefer, and have fought hard for, full funding..., I am nonetheless hopeful that this funding level will provide enough for the program to move forward without any serious program modifications, rescoping or schedule delays," Heflin said.

Space Station Utilization Team Weekly Meeting Minutes

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Grumm, Richard	355	183-401	4-9267	RGrumm	
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
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Kelley, Jim	861	180-602	4-7068		
Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Levin, Dick	311	301-285	4-1253		
Li, Fuk	334	300-235	4-2849		FLi
Lisman, Sima	343	198-326	4-4022	SLisman	
Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	

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Paul, Lori	311	301-285	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
Rosenberg, Leigh	311	301-285	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schlue, John	521	301-466	4-7318		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FSchutz	
Shao, Mike	385	169-214	4-7834		
Sharma, Jayant	312	301-170	?-????		
Smith, Jeff L.	311	301-285	4-1064	JLSmith	
Smith, Jeff H.	311	301-285	4-1236	JHSmith	JHSmith
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Thomas, Valerie	521	301-446	4-7472		
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
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Varsi, Giulio	880	180-603	4-2992	Varsi	
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White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	782	264-648	4-2543	RZenone	RZenone
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For additions or changes to this list, contact Randy Cassingham

(total 98) ■ Printed 27 September 1989

JET PROPULSION LABORATORY**INTEROFFICE MEMORANDUM**

311.5-282

9 October 1989

TO: Distribution *RC*

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 9 October 1989

PRESENT: Rob Staehle, Randy Cassingham, George Goranson, Sima Lisman, John Bosley, Kent Volkmer, Jeff L. Smith, Jim Arnett, Paul Henry, Tom Handley, Kristan Lattu

Next Meeting: 23 October 1989 at 10:30 in 301-271

Note: Next week's meeting has been cancelled due to 311's move. The next meeting will be in two weeks. The Space Station Utilization Team meetings will continue to be held in 301-271 after the move.

Rob Staehle

An RFP for definition studies for the Crew Emergency Return Vehicle (the return program is now called the Assured Crew Return Capability (ACRC) System) was released last week (see "News in Brief", below). According to NASA's press release, "The RFP encourages the use of existing technologies for a simple and reliable ACRC vehicle. ACRC necessitates that a vehicle be berthed at the station for immediate use and be reliable enough to be maintained at Freedom for long periods of time before use." For some time, a CERV was a low-priority item in the Program. Perhaps this RFP reflects the change to an astronaut as Administrator...

Rob has a brochure on the January 16-19 OAST "Technology for Space Station Evolution - A Workshop", which contains an overview of the scheduled sessions. Richard Masline is submitting a paper.

Mike Devirian will be here Friday. Dennis Kern and Paul Henry should be available for meetings.

The latest word from Steve Cooke regarding ST funding is preliminary FY90 funding levels will be "out soon".

Per Mike Devirian, Bill Lenoir says space station "system integration is moving south" -- apparently meaning Houston and Huntsville. (See "News in Brief", below, Washington Post.)

Richard Kohrs has named Robert Morehead, formerly of JSC, as Deputy Director, Program and Operations, Space Station Freedom Program Office. In that role, he will direct Reston operations. James Sisson, who has been acting Deputy Director since June, will assume the position of Deputy Manager, Space Station Freedom Program and Operations.

Rob talked with Bob Easter about JPL's problem failure reporting (PFR) system and the NASA PRACA system. Bob is interested in looking into this aspect. Jim Arnett will be sending a task plan to him soon. Rob also talked with Mike Devirian, bringing up vibro-acoustics and how we might help there. This was a follow-up to Dennis Kern's presentation last week (see last week's minutes).

Rob delivered his delayed "kudos" to Sima, with interest, for her good work on the Disturbance Management Model.

Late addition: The Space Station Evolution Symposium, scheduled for Houston October 31 through November 2, has been postponed. A new date will be set shortly. The date conflicted with Administrator Truly's plans for delivering a report to the National Space Council.

Sima Lisman

The demonstration of the Disturbance Management Model is now tentatively scheduled for room 198-313e on October 23rd at 9:45 (just before the space station meeting).

John Bosley

John is working on finishing up his final reports on Code ST tasks. Delivery is expected by next week.

Dave Nichols and Amy Walton will be holding a telescience meeting here on October 27th. This is a follow-up to the Ames telescience kickoff meeting last month, which several JPLers attended, to allow Darryl Rasmussen/ARC, who is the manager of the Code EC telescience effort, to review the outcome of the kickoff meeting and talk about what types of telescience tasks ARC would like to work with us on -- he is quite interested in working with us. It will also be a chance to prepare for a telescience symposium to be held early next year. See John or Tom Handley for details.

Jeff L. Smith

Jeff is still trying to get the ground architecture together for the FROST (Freedom Operations Simulation Test) model. Getting a complete specification is the primary holdup, but they still anticipate delivery of the model to Reston this month. If no one will provide the proper details, they will "make something up" -- which would be better than nothing (because the simulation won't run without some sort of data). Documentation will be delayed slightly also.

Jim Arnett

Jim has received about 70% of the comments he expects on the NASA Technical Note on the availability process; most comments so far are trivial, so the final draft should be ready in a couple of weeks. He is also fully aware of Valerie Thomas' work on payload classification for OSSA.

Paul Henry

The FY89 final report on the Code ST spacecraft deployment task should be finished by the end of the week and delivered to Randy for editing and production.

The JPL audio-visual people have the storyboards for the Mars Departure video. They have suggested some cell animation on some things to help drop the costs.

The SRMs for the video and some supplementary trajectory work have been submitted.

Tom Handley

Tom was in Washington last week, so he dropped over to visit Reston. He will be writing up a new task statement for Bob Vuolo, who will be here on November 30th.

Tom submitted a summary write-up on his data handling options work for the *JPL Highlights* publication.

Tom has been working to support the ground architecture work for Henry Kleine.

Jeff and Tom are both concerned about great expectations for FROST for many applications. The results from this year's (FY89) release will be very preliminary, and not useful for making actual design decisions. For next year, it will probably be necessary to procure a Sun 4 workstation to decrease the run time; so far, it is unknown how long runs will take, but they are expected to be quite long. It will take quite a bit more money to get the model running the way it needs to.

Kristan Lattu

Kristan made a presentation to her division technology working group on payload life, giving them an opportunity to make comments on her document, *Extending Space Station Payload Life; Options for Design and Operational Strategies*. Randy is working on editing it now. There was quite a bit of discussion about how payload life extension techniques will be applied to current NASA "categories" for payloads. Jim Arnett will also look at the draft and offered that he may have helpful added data. Kristan reviewed the genesis of the document from an OSSA Science Utilization Management team task assigned to BDM, and the subsequent assignment to JPL for a re-write.

Upcoming Meetings

October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 27: Telescience overview with Darryl Rasmussen/ARC in 180-703B. Tom Handley, John Bosley and several others to attend.

TBD: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, OCT. 4

"NASA ISSUES RFP FOR SPACE STATION CREW EMERGENCY RETURN VEHICLE"

"Teams led by Rockwell International and Lockheed Missiles and Space Co. confirmed that they will bid [sic from Code L!] for definition studies of a lifeboat crew return vehicle system for the Space Station under a request for proposals issued by NASA yesterday."

The DAILY reports the system will include a vehicle berthed at the station that could be used to evacuate crew members in event of a medical emergency or other contingency--including grounding of the Space Shuttle--that would require a quick return to Earth.

AEROSPACE DAILY, OCT. 5

"REVISED STATION CONFIGURATION OFFERS GROWTH OPTIONS"

"Space Station crew size will be halved to four and power cut to 37.5 kilowatts, but a revised configuration outlined by NASA officials yesterday includes options to bring it back up to near full capability when assembly is completed in August 1999."

The DAILY reports Administrator Richard Truly has sent the plan to the Office of Management and Budget for review, based on the prediction that NASA will receive \$1.85 billion for the program in FY90 and the revision equates to about a 10 percent reduction in the planned program budget for FY90. A similar reduction is planned for FY91.

The paper reports Richard Kohrs, program director for Space Station, told reports in Washington yesterday that the plan delays launch of the Japanese and European Space Agency modules, but maintains first element launch at March 1995. He said man-tended capability is now planned for April 1996, with permanent manned capability in July 1997 and assembly completion in August 1999.

WASHINGTON POST, OCT. 6

"COST OF LIVING HERE SKYROCKETS, SO NASA MANAGERS RELOCATE"

"The high cost of living the Washington area has prompted NASA to transfer away from its Reston, Va., headquarters a good deal of the responsibility for managing the proposed space station."

The POST reports Richard Kohrs, Space Station program director, said NASA was unable to attract the engineering talent and experience it required in Washington. The reason was "dollars... It probably costs a guy twelve grand a year to move to Washington," Kohrs said. He said there is no personal property tax and no state income tax in Houston, where the Johnson Space Center is located.

The paper says responsibility for integrating all the complex station systems will be moved to Houston and to Marshall Space Flight Center in Huntsville, Ala., where there are pools of engineers with significant experience in managing large space projects. Systems engineers will remain at Reston.

HUNTSVILLE TIMES, OCT. 5
"SPACE STATION CUTBACKS TO ALTER MARSHALL ROLE?"

"Marshall Space Flight Center's role in the development of Space Station Freedom may undergo several changes due to cutbacks in the program, NASA officials said Wednesday."

The paper reports Bill Lenoir, associate administrator for space station, said NASA is working on a tentative program rescheduling based on NASA's fiscal year 1990 Senate appropriation of \$1.85 billion. That figure would be enough to meet the first launch date in 1995, but could delay completion of the station until 1999. Lenoir said such a program would have the same capabilities as originally planned, it would just take longer to get there.

The paper reports under NASA's current plan, which Lenoir said could change day by day, NASA will delay the station's use of full power, delay the use of a full crew, and put off the overall completion date for the station.

The story reports Richard Kohrs, space station program director, said the flight rate used to construct the station will be reduced from eight flights a year to five, with the station being permanently manned after flight 12, scheduled for July 1997. A crew of four will initially be used in 1997, and that will expand to eight sometime in 1999.

The paper reports Lenoir said although the \$1.85 billion figure used for these calculations represents a \$200 million cut from the original request, it would still permit NASA to build an effective space station.

"We're building a hell of a space station; even when we're part-way there, it's a big station with a lot of power, a lot of room, a lot of long-term crew time," Lenoir said.

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2 October 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 2 October 1989

PRESENT: Rob Staehle, Randy Cassingham, Richard Masline, George Goranson, Bing Chen, Kristan Lattu, Jeff L. Smith, Richard Grumm, Dennis Kern, Jim Arnett, John Bosley, Sima Lisman, Paul Henry

Next Meeting: 9 October 1989 at 10:30 in 301-271

Rob Staehle

Rob received several items from Code EM. Contact Rob for copies of anything of interest.

- 1) a letter from Mark Sistilli regarding attached payload accommodation requirements, based on the selected payloads.
- 2) The OSSA Space Station Freedom utilization plan, which was signed by Robert Rhome, outlines what they plan to do and when. Rob isn't sure how much the rephasing has been figured in.
- 3) A viewgraph package titled "Initial OSSA reactions to the Space Station Rephasing".

Rob received a copy of the announcement of the American Astronautical Society's 36th annual meeting, which will be held in L.A. November 1-3.

Rob also has a copy of the flyer for the Technology for Space Station Evolution workshop. Interesting-looking sessions: Robotics (Jeff H. Smith is the chair), Communications and Tracking, and Data Management System. Requests for invitations to present papers are due right away; papers are due on the 13th, and will not be considered after that date. Dick Masline might consider getting on the presentation agenda for the DMS session. Kent Volkmer will be attending.

FY89 actuals should be available for this week; the call for FY90 SRMs will be made shortly for those tasks that don't already have them done.

Section 311 -- which includes Rob, Paul Henry and Randy Cassingham -- will be moving off-Lab to the new building on Woodbury (near the IPC) on October 16. The Space Station Utilization Team meetings will continue to be held on Mondays at 10:30 in 301-271. Section 311 phone numbers will remain the same, though they may not be connected from October 13-17 or so. The mail stop will be 601-237.

Final FY89 task deliverables should be completed by now, unless prior arrangements have been made with the sponsor. The managers of any tasks that haven't made their final deliverables or arrangements need to talk to Rob.

Everyone should look for opportunities to turn their final task reports into journal papers or conference presentations. Sima's model and John Bosley's A&R work are among the obvious areas of possible interest. Paul indicated that people on his Mars Departures tasks are considering possible papers.

Richard Masline

Dick has updated the architecture to more accurately reflect the ground system for the FROST system. It should be completed soon. Dick noted the difficulty in putting together an architecture when exact parameters and goals are not known. It will be a while before a mature design emerges. In the meantime, the models will not necessarily represent the "real world".

George Goranson

George is working on his final report for FY89 for Al Holt; it will take about a month to complete (a date which Holt previously agreed to to permit intervening work which was requested by Level II but not originally planned).

Kristan Lattu

Kristan reported on last week's SUM team teleconference. A draft of the "Payload Analytical Functional Control Document" was circulated by MSFC. We hope to review it before it is baselined at the end of the year. Comments are due to Cressy then.

Several SUM-related meetings have been planned and are on several calendars, but they were scheduled before the rephasing. Therefore, they may be cancelled or delayed. Kristan has a list of the meetings and the changes made so far. Call her for details.

Jeff L. Smith

Jeff agreed with Dick Masline that FROST will not necessarily model the "real world", but he emphasized that FROST is only five months old -- it has a long way to go. It can be quite easily refined as more parameters are finalized.

The FROST delivery is slipping a little due to the lack of the definition of the ground segment. Delivery of the latest version is anticipated in two weeks. Documentation should be out by the 30th.

Jeff met with Moustafa Chahine last week to talk about resource allocation policy for Code E users. He was skeptical: Jeff is proposing that the traditional committee approach is unwieldy. For instance, the EOS investigator's working group has 76 PIs and 400 Co-Is. A meeting at GSFC was quite chaotic. For the next meeting, to be held at JPL, only the PIs have been invited. Jeff will be attending to learn about the primary concerns of the PIs.

Jeff will be meeting with Lenoir and Kohrs on the 18th regarding pricing policy.

Dick Grumm

Dick reports that he has not received any database input requests recently. However, he understands that a request is on the way from Langley...

Dennis Kern

Dennis attended the first meeting of the vibro-acoustics group, a splinter group of the Loads and Dynamics Working Group. The primary goal is to control onboard noise for the health and comfort of the crew. Dennis indicated concerns both for payload needs and the impact on heavy payloads. A preliminary control plan was drawn up, but an initial assessment shows that the requirements will be very difficult to meet. Dennis gave a detailed presentation on the meeting; he has a set of viewgraphs if you are interested in getting copies. Tracor Applied Sciences presented a vibroacoustics control plan for Space Station Systems, but this plan has not been adopted. Work Package 2 (JSC) seems most receptive and could have a role integrating such a plan across all work packages. Based on results of other programs, this plan is coming rather late in the game because proposals for some station components (e.g., fans and compressors) have already been solicited without vibroacoustic criteria being specified.

Dennis felt the Loads and Dynamics Working Group and splinter groups lacked technical experts in vibroacoustics, and recommended JPL representation. He also recommended that JPL seek to develop a tool based on the JPL Vibroacoustic Payload Environment Prediction System (VAPEPS) for modelling onboard vibroacoustics. MDSSC is using VAPEPS to model the launch environment. Any such effort would be coordinated with the ongoing disturbance modelling effort. Rob will discuss this with Mike Devirian.

Jim Arnett

Jim is replacing Marvin Moss in support to Mukand Gangal on the availability task. Jim is working on converting the availability process document into a NASA Technical Note. The first draft of the document has already been circulated for a PE&A review. Jim expects the task to be completed by the end of November.

Other possible tasks he may propose: availability requirements should be baselined, but this is apparently not wanted by Kohrs. Also proposed a Problem Failure Accountability System task, but it was not funded. Since Code S doesn't seem interested in a failure accountability system, Code Q may be a possible route to implement it. Such a system is considered to be a significant factor in Voyager's success, while the present NASA PRACA is considered incomplete and cumbersome for following problems to resolution and preventing recurrence. George Goranson notes that according to Mukand Gangal, Code Q (George Rodney) is sending a memo to Code S requesting that Code S adopt minimum availability standards for life support and mission support.

John Bosley

John is working on the final report for Code ST (the working title is *Advanced Robotics for In-Space Vehicle Processing*); it should be ready to go by the middle of the month. He is also working on a presentation for the evolution symposium with Jeff H. Smith. His PE&A work is now finished.

Sima Lisman

The overview presentation of the disturbance modelling tool to the Loads and Dynamics Working Group last week went well. Some good questions. Alan Lindenmoyer/SSE, who ran the meeting, thought it looked very good.

A disturbance modelling system demonstration is tentatively planned for Monday, October 23 at 9:45 (before the regular meeting) in 301-490L.

Paul Henry

Paul has received several copies of the agenda of the Space Station Evolution Workshop, which will be held near JSC at the end of October. Contact him for copies. During the Thursday (November 2) session on Operations Evolution, Jeff H. Smith will be presenting on "Advanced Robotics for In-Space Vehicle Processing"; Paul will be presenting "Space Vehicle Deployment from Space Station."

The three-impulse case has been completed for the high declination departures from the station, and work is well along on the broken plane departure. It looks like both topics will make it into the final report for FY89. Paul will be meeting Wednesday with Section 312 people to discuss Mars and Earth entry from free-return trajectories.

Andrey Sergeyevsky has run plots for a free return case as a template for the Mars departure video.

Paul talked with Dave Suddeth/GSFC concerning the action item from the environmental steering committee (Gary Wickes/MSFC) regarding the contamination effects of hydrazine propulsion systems. Suddeth agreed to take it up with Wickes, who has copies of our Contamination report.

A meeting of the steering committee is planned for mid-October. We may want to attend to present our findings; we probably have enough money left to cover it by sending Jerry Millard.

Upcoming Meetings

October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 31-November 2: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AVIATION WEEK & SPACE TECHNOLOGY, OCT. 2

"SPACE STATION DELAY PLANNED; MANAGEMENT REORGANIZATION SET" Craig Covault

"Completion of the U.S./international space station will be delayed 1.5 years to 1999 and management of the program will be reorganized under changes being implemented by NASA."

AV WEEK reports the role of the Space Station program office in Reston, Va., will be modified significantly and more management control of the program shifted to the Johnson Space Center and the Marshall Space Flight Center.

The magazine says launch of the Japanese and European Space Agency modules to the station will be delayed by nearly a year to 1998 under the new plan just being completed.

AV WEEK says power available to users will be significantly less than earlier expected, even when the station is outfitted with 75 kw. solar arrays in late 1997. Station users had been promised 45 kw; they will now have to operate with only about 30 kw.

The magazine reports these and other detailed Station program changes were recommended formally last week to NASA Administrator Richard Truly by William Lenoir, NASA associate administrator for Space Station and Space Flight. The changes need to be made in the context of both the Station's budget shortfall and the overall condition of the program within NASA.

"We think we now have a viable program that we can deliver on," Lenoir told AV WEEK. "I had hoped I would find the program in better shape than I did when I came in," Lenoir said.

AV WEEK says the Station changes are largely the result of a significant reduction expected in NASA's \$2.05 billion FY90 request for the Space Station program. The House has voted to cut the Station budget by \$400 million while the Senate would reduce the budget by \$200 million. NASA and congressional officials believe once the House and Senate settle their FY90 budget differences, the Station will have to absorb at least the \$200 million shortfall.

The magazine reports Lenoir said the Station modifications being approved are the minimum needed for the project to absorb a \$200 million cut and still move forward. NASA also is becoming more realistic about Station funding prospects in the FY91 budget. NASA had originally planned to seek nearly \$3 billion in FY91, but will now request \$300-400 million less than that.

"We have been listening to what people have been telling us about the ability of Congress to appropriate that kind of money, and it's not there in today's budget environment," Lenoir said. "It was unrealistic for us to be going after the funding profile we were on originally. We have downsized our expectations to the point, however, where if we request anything less than that, it's not clear we should even proceed with the program."

AV WEEK reports Lenoir said a Station project management reorganization is needed regardless of the funding shortfall.

"We are revamping and reorganizing the Station management structure at NASA headquarters and will reorganize it significantly in Reston," Lenoir said. "A significant amount of change will be necessary to get into the right management structure, to manage the preliminary design phase we are just entering."

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Zygielbaum, Art	750	180-701	4-3564	AZygielbaum	RZenone

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(total 98) ■ Printed 2 October 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.4-394

23 October 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 23 October 1989

PRESENT: Rob Staehle, Randy Cassingham, Sima Lisman, Bing Chen, Richard Masline, Kent Volkmer, Paul Henry, Kristan Lattu

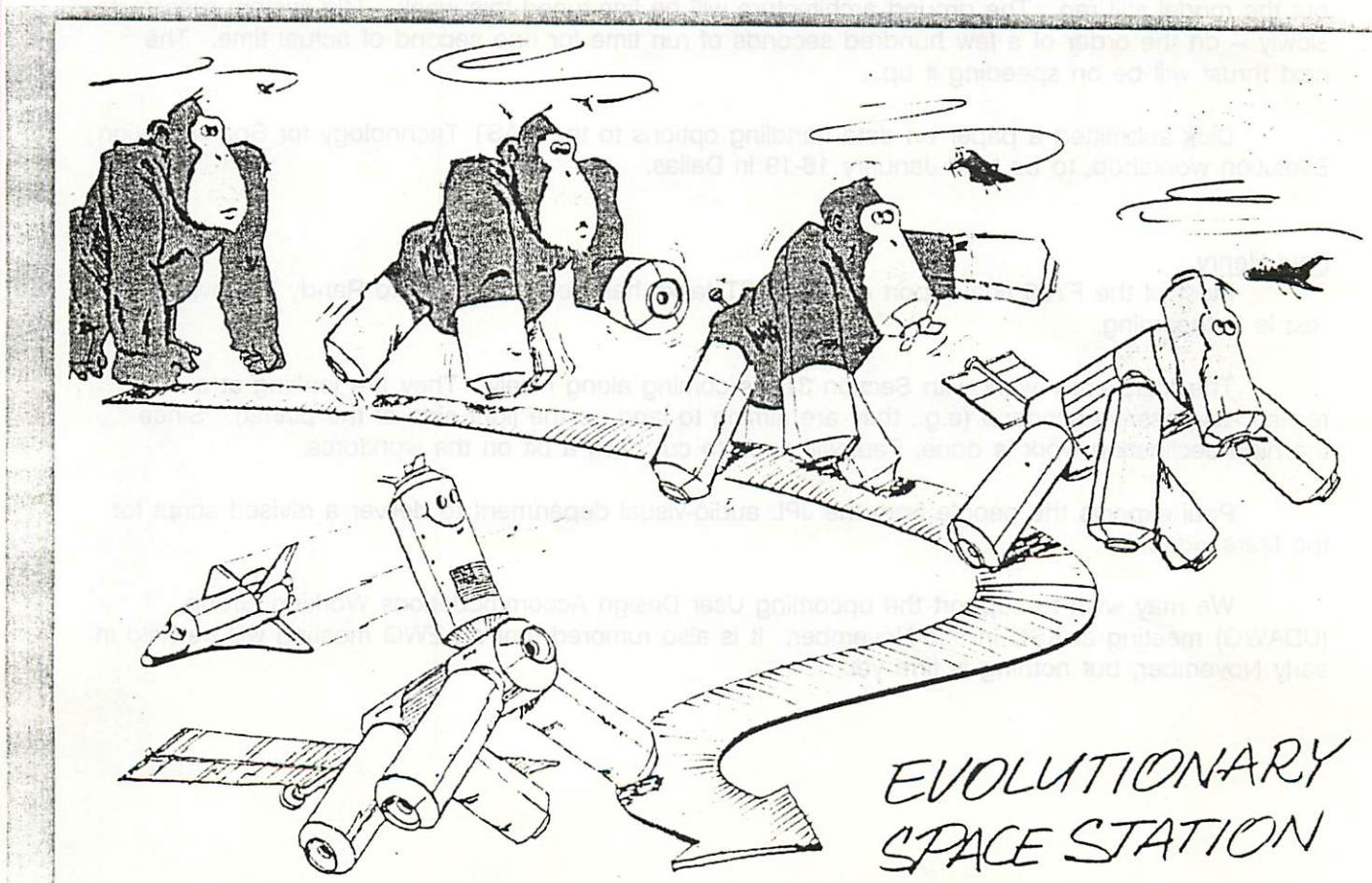
Next Meeting: 30 October 1989 at 10:30 in 301-271

Note: Last week's meeting was cancelled due to 311's move. The mail stop for most Section 311 personnel is now 601-237 (see distribution list). Phone numbers have **not** changed.

Rob Staehle

Rob will be out of town next Monday. Paul Henry will likely run the meeting; if he is also unavailable, a notice will be posted cancelling the meeting.

Rob passed around the cartoon reproduced here. It is from the ESA-published *Columbus Logbook*, and shows the European view of space station evolution...



Thanks to Sima Lisman, who gave a demonstration of her Disturbance Management Model.

According to Bob Easter, funding for Reston operations looks "stable". The budget is holding at about 2/3 of last year, as expected. Moorehead (the new deputy director of the SSPO) has a favorable attitude toward PE&A, and has invited proposals from Reston for part of his budget reserve in addition to funds already planned. Also, Program Director Kohrs is being pressured to soften his opposition to evolution work. Dick Laeser will be presenting a Reston office status report at the Director's Review meeting this afternoon.

Phil Cressey's Code E budget is still uncertain.

Randy Cassingham

Because the A&R task was not picked up this year, John Bosley is in need of work. John has a lot of space station (and human factors and robotics) experience, both from here and from Ames Research Center. Let's not let all this experience get away!

Kristan Lattu's Payload Life Extension report is done with editing and is ready for production and printing. It will probably go to the printer Tuesday, Wednesday at the latest.

The Cate Heneghan/John Bosley/Jay Estus A&R report is being edited; it needs a couple of weeks' work.

Paul Henry has now delivered most of the final report for the Vehicle Departure (Code ST) task to Randy for massage. No time estimate yet on completion; Randy hasn't had a chance to start on it yet.

Richard Masline

A running FROST (Freedom Operations Simulation Test) model was delivered to Reston on Thursday. The ground system architecture for the model is rudimentary and still has some errors, but the model still ran. The ground architecture will be fine-tuned this week. The system runs quite slowly -- on the order of a few hundred seconds of run time for one second of actual time. The next thrust will be on speeding it up...

Dick submitted a paper on data handling options to the OAST Technology for Space Station Evolution workshop, to be held January 16-19 in Dallas.

Paul Henry

Most of the FY89 final report on Code ST tasks has been delivered to Randy for review; the rest is forthcoming.

The Mars entry work with Section 312 is coming along nicely. They are looking at a realistic-as-possible scenario (e.g., they are aiming to land on the light side of the planet). Since the high-declination work is done, Paul will need to cut back a bit on the workforce.

Paul expects the people from the JPL audio-visual department to deliver a revised script for the Mars video.

We may wish to support the upcoming User Design Accommodations Working Group (UDAWG) meeting at KSC in mid-November. It is also rumored that an EWG meeting will be held in early November, but nothing is firm yet.

Kristan Lattu

Kristan and Hershal Fitzhugh have started work on a new space station document based on the MROFE -- the *Mission Requirements on Payloads/Facilities/Experiments* document. This MSFC-produced document for the Shuttle is a high-level description of processes and procedures which outlines responsibilities, interfaces, required documentation, etc. Kristan and Fitz will write a similar document to reflect the space station's requirements, responsibilities, interfaces, etc. The work is being supported by Code E, and came via the SUM team; the draft is due in November.

Rob asked Kristan to make an estimate of resources necessary to support the SUM team this year. They already have some money, but it is not likely that it will be sufficient for all the work they have been asked to do.

Upcoming Meetings

October TBD: OSSA attached payload workshop in Washington DC. No one yet slated to attend (JPL experimenters, Frank Wright, and Rob Staehle likely to).

October 27: Telescience overview with Darryl Rasmussen/ARC in 180-703B. Tom Handley, John Bosley and several others to attend.

November 27-29: SUM team Director's review in Galveston. Kristan Lattu, Hershal Fitzhugh and Bob White to attend.

November TBD: EWG meeting. Paul Henry and Jeff H. Smith to present.

November or December TBD: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, OCT. 18

"CONFEREES SET \$12.4 BILLION FOR NASA, \$1.8 BILLION FOR STATION"

"NASA would receive \$12.4 billion for fiscal 1990, including \$1.815 billion for the Space Station, under a compromise appropriations bill completed by House-Senate conferees late yesterday."

The DAILY reports the bill, which requires House and Senate approval, reportedly includes \$35 million for the National Aerospace Plane, \$121 million for research and development of the Advanced Solid Rocket Motor and either \$90 million or \$100 million for ASRM construction of facilities.

AEROSPACE DAILY, OCT. 19

"DOCKING SYSTEM PROBLEM DELAYS LAUNCH OF MIR MODULE TO NOV. 28"

"Launch of a module for the Mir space station, which had been set for Monday, was postponed until Nov. 28 by problems found in its guidance and docking system during recent ground tests."

The DAILY reports the problems were found in the Kurs (Course) automated docking system of the Module D, which carries a manned maneuvering unit similar to one developed by the U.S. Mir flight controller Vladimir Solovyev told the Soviet news agency Tass last week that the Kurs system proved unreliable during ground tests, but has worked properly during previous flights. More tests are planned, Solovyev told Tass.

The paper reports the delay will not affect cosmonauts Aleksandr Viktorenko and Aleksandr Serebrov, who have been on the station for a month, Victor Blagov, deputy flight leader, said. The two, who will conduct five spacewalks, will return to Earth on Feb. 19. Their replacement crew will arrive on Feb. 11, Blagov said.

The DAILY reports in a related development, Mir's orbit was raised on Oct. 11 and will require another maneuver to place it and its crew in position to receive the module.

Space Station Utilization Team Weekly Meeting Minutes

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Beatty, Richard	120	Reston	8-457-7592	RBeatty	
Borden, Chet	311	601-237	4-1238		CBorden
<u>Breckinridge, James</u>	<u>385</u>	<u>169-314</u>	<u>4-6785</u>		<u>JBreckinridge</u>
Brunstein, Sam	334	300-243	4-2561		
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Chen, Bing	355	67-201	4-5353	CPChen	
Coffin, Dick	317	233-208	4-3730	RCoffin	
Colavita, Mark	385	169-214	4-7835		
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Doane, Jim	311	601-237	7-?????	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
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Garrett, Hank	521	301-456	4-2644		
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Gray, Bill	311	601-237	4-1090	BillGray	
Grumm, Richard	355	183-401	4-9267	RGrumm	
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	601-237	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
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Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Levin, Dick	311	601-237	4-1253		
Li, Fuk	334	300-235	4-2849		FLi
Lisman, Sima	343	198-326	4-4022	SLisman	

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Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
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Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA	95204		MHumfreville
McGraw, Ken	311	601-237	4-1121		
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Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Murphy, Gerald	521	301-460	4-6930		
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Olivieri, Jerry	311	601-237	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	601-237	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
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Sergeyevsky, Andrey	312	301-165	4-7622		
Schlue, John	521	301-466	4-7318		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FSchutz	
Shao, Mike	385	169-214	4-7834		
Sharma, Jayant	312	301-165	3-9616		
Smith, Jeff H.	311	601-237	4-1236	JHSmith	JHSmith
Smith, Jeff L.	311	601-237	4-1064	JLSmith	
Staehle, Rob	311	601-237	4-1176	RStaehle	
Steele, Laura	311	601-237	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tai, Wallace	317	233-208	4-7561		
Thomas, Valerie	521	301-446	4-7472		
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591	MUrban	
Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	301-285	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	782	264-648	4-2543	RZenone	RZenone
Zygielbaum, Art	750	180-701	4-3564	AZygielbaum	

For additions or changes to this list, contact Randy Cassingham

(total 98) Printed 24 October 1989

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.4-405

6 November 1989

TO: Distribution 

FROM: Randy Cassingham

SUBJECT: SS Utilization Team Minutes for 6 November 1989

PRESENT: Rob Staehle, Randy Cassingham, Andy Beck, Richard Masline, Bing Chen, Richard Grumm, Sima Lisman, Tom Handley, Kristan Lattu

Next Meeting: 20 November 1989 at 10:30 in 301-271

Note: Last week's (October 30) and next week's (November 13) meetings have been cancelled due to travel. The next meeting will be held November 20th.

Rob Staehle

Rob talked with Bob Easter about funding for next year. The meeting between PE&A people and Robert Moorehead, the new deputy director of the SSPO, has been postponed until tomorrow. However, Bob is even more confident that the PE&A Pasadena budget will keep to recent projections (2/3 of last year's budget, with the possibility of more funding being available in a few weeks from Moorehead's reserve; task managers should keep follow-on task activities in mind if a request for proposals materializes in a few weeks.)

Rob also talked with Mike Devirian about Moorehead. Moorehead has a good impression of JPL, having worked on Surveyor when he was at Hughes. Also, he expressed interest in the various models we are working on (SDTM, FROST, etc.)

A meeting on vibro-acoustic modelling will be held in Reston or Washington on November 14th; Mike Urban is inviting people to attend. A dry run will be presented here by Terry Scharton/521 on Wednesday the 8th in room 601-243 at 2:00.

Division 35 is putting a CAD system together, and wanted to make it compatible with the Space Station Technical and Management Information System (TMIS). Apparently, CAD compatibility over TMIS is not supported for non-work package centers (e.g., JPL and Ames). The current JPL TMIS rep, by the way, is Jim Jacobson/372.

Liz Carpenter has left JPL/PE&A. Mike Devirian advises that her responsibilities have been reassigned to:

- Rich Beatty for A&R Program Engineering
- Dave Hixon for Orbital Debris Planning
- Dave Hixon for Mission Evolution Planning and Assessment.

Judee Robey is now with Bionetics for Code EN. In her new role, she asked Dick Grumm for information regarding software models. Rob told her about VAPEPS (the JPL Vibroacoustic Payload Environment Prediction System), SDTM, FROST and the Disturbance Management models; anyone aware of any other models Codes E or S would be interested in should contact Rob.

Randy Cassingham

Kristan's document, *Extending Space Station Payload Life; Options for Design and Operational Strategies* is off the press and distributed, and requests for additional copies are already coming in. Half of Randy's reserve is depleted already; if demand keeps up, it will have to be reprinted.

Andy Beck

Andy is covering for George Goranson until further notice.

Al Holt/SSU was in town Friday for a conference, and dropped by for a couple of hours to talk about three of 521's tasks - Environmental Interactions, EMI/EMC Seminars, and an outline for a user-oriented handbook on environmental design guidelines. Budgets and products were discussed.

Richard Masline

The early runs from FROST have provided some interesting results already, but FROST should not yet be considered a validated design tool. Dick will be attending the UOWG and UIP meetings in Cocoa Beach in hopes of gathering some information to refine some of the model's assumptions.

Tom Handley

Tom discussed the upcoming telescience meeting at JPL (see further discussion under Dick Grumm). The meeting will probably be scheduled for the week of November 20; Tom expects to know a date by the 13th. Contact Tom or Amy Walton (4-3469) for more information.

Bing Chen/Kristan Lattu

Bing and Kristan are continuing work on the space station version of MSFC's MROFE document (see description in the 23 Oct minutes). They are in the process of generating a high-level flowchart of payload processing steps. Their initial reaction is that the MROFE is a good document from an information standpoint, and describes the (Spacelab) payload processing flow well, but it suffers from not being written from a user-oriented point of view.

Richard Grumm

Dick met last week with Ken Atkins/342 regarding space station electrical power. Money on the task runs out next month, so Dick is worried about losing Stan's availability to consult on station payload concerns.

Dick received some review copies of a draft of a Teledyne-generated document, *Catalog of Selected Spacelab Experiment Support Equipment*, written for Code EN. The catalog lists existing hardware that might be used for station payloads so payload designers don't have to "reinvent the wheel".

In a meeting at MSFC Dick attended with Wallace Tai/317 and Dave Nichols/750, Marshall people, for the first time, are starting to say that telescience is a good idea, but that it is "too expensive". Also, they say that the concept might endanger National Security by violating a White House directive regarding control of space vehicles. Dick's general impression: MSFC is reluctant to embrace telescience. Wallace Tai reports from the same meeting that MSFC personnel are very eager to work with JPL to define a successful payload operations system. MSFC will help fund JPL support with Code EC funds because they value JPL's experience as a payload developer and operator.

Amy Walton is chairing the telescience meeting that has been mentioned in several recent meetings. Darryl Rasmussen/ARC will be coming to present. The October 27th date was

postponed due to several factors, not the least of which was the October 17th earthquake. (See related item under Tom Handley.)

Dick noted during preparation meetings for the containerless processing workshop at JPL in January that the station descoping is creating a lot of disillusionment among scientists. One interesting item: it has been said that the Columbus module may have its own data link (through a European data satellite, **not** through TDRSS), which may be "better" from a user standpoint.

Tomorrow at 8:00, McDonnell Douglas will be holding a video teleconference regarding the DMS computer being built for the station and whether payloads should have compatible computing equipment built into them.

Sima Lisman

Sima has been in contact with people from Bionetics working for Code EN. They are very interested in her Disturbance Management tool. Mike Urban is setting up a demo at the UDAWG meeting on the 29th.

Upcoming Meetings

November 13-14: User Operations Working Group meeting in Cocoa Beach. Richard Masline and Rob Staehle to attend.

November 14: Vibro-acoustic meeting in Reston. Terry Sharton/521 to present; Mike Urban and Washington-area invitees to attend.

November 14-15: Evolution Working Group meeting in Cocoa Beach. Rob Staehle to attend; Paul Henry to present.

November 15-16: User Integration Panel meeting in Cocoa Beach. Richard Masline and Rob Staehle to attend.

November 27-29: SUM team Director's Review/Mission Manager Review in Galveston. Kristan Lattu, Hershal Fitzhugh and Bob White to attend.

November 29-30: UDAWG meeting in Reston. Paul Henry, Sima Lisman and Robert Laskin to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

February TBD: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

Recent Space Station-related Items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, OCT. 25

"HOUSE COMMITTEE PLANNING 2 DAY REVIEW OF SPACE STATION REPHASING

"The House Space, Science and Technology Committee will review rising operational costs and the affect of repassing on commitments to international partners during two days of hearings on the Space Station next week."

The DAILY reports Chairman Robert Roe has given NASA officials until Oct. 30 to respond to 20 pages of questions and comments put together by committee staffers who have reviewed congressional testimony and bill language relating to the station since it was first proposed. International partners are scheduled to testify Nov. 1 with NASA officials to follow Nov. 2.

AEROSPACE DAILY, OCT. 27

"HOUSE SPACE COMMITTEE MOVES HEARING ON SPACE STATION TO OCT. 31"

"The House Science, Space and Technology Committee has rescheduled the first of two hearings on the Space Station repassing plan to Oct. 31 and postponed testimony by international partners until later in November."

The DAILY reports the committee said the hearings, originally planned for Nov. 1 and 2, were changed for the convenience of the committee members, but that representatives of two of the program's international partners said their governments didn't have enough time to prepare testimony.

NASA Administrator Richard Truly and Associate Administrator for Space Flight William Lenoir are scheduled to testify Oct. 31 at 1 p.m. NASA expects to deliver today its responses to 20 pages of questions put together by committee staff on previous testimony on the Space Station.

USA TODAY, NOV. 1

"NASA FEARS SPACE STATION DELAYS"

"Design changes in NASA's \$30 billion space station Freedom won't hamper its mission, but continued stopgap funding could delay the project, NASA chief Richard Truly told Congress."

USA reports modifications--including heating, electric and propulsion systems--have angered some members of the House Committee on Space, Science and Technology. Committee chairman Robert Roe said more broken commitments and replanning could result in scrapping the project.

ASSOCIATED PRESS, NOV. 1 Harry Rosenthal

"NASA's top officials are trying to assure skeptical congressmen that a scaled-down space station now on the drawing boards will have the same capabilities as originally promised."

"Space Station Freedom assembly completed is going to be essentially the Space Station Freedom we have been committed to," NASA administrator Richard Truly told the House Science and Technology Committee on Tuesday.

AP reports Truly said an extensive review that resulted in technical changes to the proposed space station was necessary because of threatened cuts in NASA's budget. NASA, he said, must "get off the funding seesaw."

"We have requested multi-year appropriations for each of the last two years--without success," Truly said. He said longer-term funding "is critical to the ultimate success of this program."

UNITED PRESS INTERNATIONAL, NOV. 1 Vincent Del Giudice

"The future of America's \$30 billion space station Freedom project appears to be in peril, the chairman of the House Committee of Space, Science and Technology said Tuesday."

UPI reports alarmed by NASA's latest modifications to plans for the Space Station, Rep. Robert Roe, called a hearing to ask NASA officials, "Do we want a space station or don't we? We hope when we get done...there is a Space Station."

UPI reports Roe and other committee members were critical of modifications to the space station program.

"If the committee can only look forward to continued replanning, reshaping, broken commitments, changing management philosophies and international embarrassment, I believe we should leave the station behind us and begin anew with a more resilient plan for the future in space," Roe said. "If we accept this or any plan for reshaping the station how can we be convinced that it is still worth the cost?"

UPI reports Truly, responding to the committee's concerns, said, "I am not making the statement this is the identical station, but it will have the same capabilities as before."

AEROSPACE DAILY, NOV. 1

"SPACE STATION HOUSEKEEPING POWER LEVEL INCREASES TO 45 KW"

"Housekeeping power requirements for Space Station operations has crept above 45 kilowatts and an engineering team has been assigned to keep the level from increasing, NASA Administrator Richard Truly told a House committee yesterday."

The DAILY reports members of the House Science, Space and Technology Committee told Truly and William Lenoir, associate administrator for Space Station, that they were upset that they had not been kept abreast of the repaving effort and warned of even more difficult funding fights expected for fiscal year 1991 funding.

The story reports Lenoir told the committee that housekeeping power requirements have increased from 30 Kw to more than 45 Kw, leaving 30 Kw for users, and an engineering team has been assigned to cut that requirement back to 45 Kw.

"We have systems that are going to consume more housekeeping power than originally believed," Lenoir said. "We have to get some (systems) down to get to (45Kw), but I think we can do that." Truly said the international partners would also be asked to look for ways to reduce power requirements for operations other than experiments.

The DAILY reports committee chairman Robert Roe said he was disappointed that Congress had not been consulted on the program rephasing. "We do not wish to micromanage, but we must establish a basis for the committee's continued support," he said.

The paper reports Truly called for a more stable funding plan and said he opted for the rephasing study after being warned of a potential \$400 million cut to station funding in FY '90.

"The Space Station Freedom...at assembly complete is going to be essentially the same Space Station...we committed to," Truly said. "We can't continue to provide capability on schedule without the money. It's like a three-legged stool."

AEROSPACE DAILY, NOV. 1

"MIR COSMONAUTS TO RETURN IN FEBRUARY"

"Cosmonauts Aleksandr Viktorenko and Aleksandr Serberov, who have occupied the Mir space station since Sept. 7, will return to Earth Feb. 18 or 19, according to Soviet news reports."

The DAILY reports launch of the first of two new Mir modules is still planned for Nov. 28, according to Moscow World Service. Launch was planned for Oct. 16, but was postponed after faults were detected in two of 10,000 panel circuit boards manufactured using a new process. The boards are used in the module's Kurs (Course) automatic docking system.

AEROSPACE DAILY, NOV. 2

"NASA CONSIDERING SHIFTING WORK TO CUT STATION DEVELOPMENT COSTS"

"NASA officials are considering shifting responsibility for Space Station system integration from the Reston, Va., program office to Marshall Space Flight Center and Johnson Space Center to reduce overall program cost."

The DAILY reports in written responses supplied to the House Science Space and Technology Committee last week, NASA said the Reston office would continue day-to-day program management, systems engineering, program control, management and operations integration. Offices at the centers would be managed by program office personnel reporting directly to the Space Station program office manager in Reston.

The DAILY reports NASA's responses to more than 100 questions submitted by the committee staff were made public late Tuesday following a hearing on the station rephasing plan. The paper says committee members called the hearing in part to express their displeasure over not having been consulted prior to approval of the rephasing plan and to warn NASA that their support was needed to maintain program funding.

The paper reports Administrator Richard Truly told the organization Women in Aerospace yesterday that he believed he had made "a lot of progress" in regaining that support during Tuesday's hearing.

The DAILY reports NASA will review the rephasing plan once more within the Administration later this month and then begin renegotiating contracts with the prime contractors.

HUNTSVILLE NEWS, NOV. 1

"ESA DIRECTOR SAID DISSATISFIED WITH NASA'S SCHEDULE"

"The director of the European Space Agency says he isn't satisfied with NASA's latest schedule for getting a planned \$25 billion space station into orbit."

The paper reports Dr. Lues Reimer said ESA is concerned about delays it must face in planned space science research programs because NASA has delayed the planned deployment of an ESA laboratory module. NASA had planned to take the ESA module into orbit by 1997 or 1998 and attach it to the U.S. space station. Marshall Space Flight Center said last night the ESA lab module may not get into space now until 1999.

"We could accept a nine months delay but not another 18 months," Reimer said during a tour of the Huntsville space center. He said ESA is prepared to make its planned space station lab module available for deployment in 1996, earlier than planned, and share its use with NASA in order to "stay on schedule" with scientific experiments that could be delayed by slippages in the space station program.

The paper reports NASA Deputy Administrator J.R. Thompson, when asked about Remier's suggestion, said, "The NASA space station deployment schedule should remain as it is."

Space Station Utilization Team Weekly Meeting Minutes

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Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>601-237</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBBreckinridge
Brunstein, Sam	334	300-243	4-2561		
Bosley, John	311	601-237	4-1754	JJBosley	
Carpenter, Liz	120	Reston	8-457-7216	EDutzi	
<u>Cassingham, Randy</u>	<u>311</u>	<u>601-237</u>	<u>4-1273</u>	<u>RCassingham</u>	
Chen, Bing	355	67-201	4-5353	CPChen	
Coffin, Dick	317	233-208	4-3730	RCoffin	
Colavita, Mark	385	169-214	4-7835		
Das, Radhe	342	303-300	4-9736		
<u>Deshpande, Govind</u>	<u>311</u>	<u>601-237</u>	<u>4-1279</u>	<u>GDeshpande</u>	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Doane, Jim	311	601-237	?-????	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Frederick, Suzanne	311	171-258	4-1181	SKFrederick	
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	521	301-460	4-4952		
Garrett, Hank	521	301-456	4-2644		
Glavich, Tom	385	169-314	4-3952		
Goranson, George	521	122-113	4-2809		
Gray, Bill	311	601-237	4-1090	BillGray	
Grumm, Richard	355	183-401	4-9267	RGrumm	
Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
Hartsough, Chris	367	301-350	4-1498	CHartsough	
Henry, Paul	311	601-237	4-1257	PHenry	PHenry
Hixon, Dave	120	Reston	8-457-7220	DHixon	
Hooke, Adrian	317	233-208	4-3063	AHooke	
Horttor, Richard	339	161-228	4-2462		
Houseman, John	385	89-1	4-1601		
Hyde, James	120	Reston	8-457-7204	JHyde	
Ivie, Chuck	366	301-440	4-6045	Clvie	
Kehoe, Tom	120	Reston	8-457-7206	TKehoe	
Kelley, Jim	861	180-602	4-7068		
Kern, Dennis	521	301-456	4-3158		
Kleine, Henry	363	510-264	7-9690	HKleine	
Krauthamer, Stanley	342	512-202	7-9130		
Kuberry, Dick	521	301-460	4-8827		
LaBaw, Clayton	382	11-116	4-6248	CLaBaw	
Laeser, Dick	120	Reston	8-457-7200	RLaeser	
Laskin, Bob	343	198-326	4-5086	RALaskin	
Lattu, Kristan	374	179-206	4-2499	KLattu	
Levin, Dick	311	601-237	4-1253		
Li, Fuk	334	300-235	4-2849		FLi

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Lisman, Sima	343	198-326	4-4022	SLisman	
Lyu, Michael	522	301-476	4-9411		
Mahoney, Bill	328	169-327	4-6606	WAMahoney	
Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
McGraw, Ken	311	601-237	4-1121		
Millard, Jerry	354	89-1	4-2898		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Murphy, Gerald	521	301-460	4-6930		
Nichols, Dave	750	180-701	4-8912		
Nishioka, Ken	381	168-227	4-7674		
Oleson, Gary	120	Reston	8-457-7590		
Olivieri, Jerry	311	601-237	4-1186	JEOlivieri	
Pappano, Al	213	180-402	4-5007	APappano	APappano
Paul, Lori	311	601-237	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
Rosenberg, Leigh	311	601-237	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schlue, John	521	301-466	4-7318		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FSchutz	
Shao, Mike	385	169-214	4-7834		
Sharma, Jayant	312	301-165	3-9616		
Smith, Jeff H.	311	601-237	4-1236	JHSmith	JHSmith
Smith, Jeff L.	311	601-237	4-1064	JLSmith	
Staehle, Rob	311	601-237	4-1176	RStaehle	
Steele, Laura	311	601-237	4-1284	LCrary	
Starsman, Ray	120	Reston	8-457-7226	RStarsman	
Tai, Wallace	317	233-208	4-7561		
Thomas, Valerie	521	301-446	4-7472		
Tsou, Peter	313	233-306	4-6673		
Turner, Dick	313	233-306	4-5643		Dick.Turner
Urban, Mike	120	Reston	8-457-7591	MUrban	
Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	171-258	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	782	264-648	4-2543	RZenone	RZenone
Zygielbaum, Art	750	180-701	4-3564	AZygielbaum	

For additions or changes to this list, contact Randy Cassingham

311.4-410

20 November 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 20 November 1989

PRESENT: Rob Staehle, Randy Cassingham, Sima Lisman, Bing Chen, Tom Handley, Richard Grumm, Hershal Fitzhugh

Next Meeting: 27 November 1989 at 10:30 in 301-271

Note: Last week's meeting was cancelled due to travel.

Rob Staehle

A paper Rob wrote in 1987, *Earth Orbital Preparations for Mars Expeditions*, was finally published by the American Astronautical Society this month. Contact Rob if you are interested in getting a copy.

Bob Easter forwarded three new organization charts for the space station Program now that Code S (station) and Code M (STS and other launch vehicles) have combined. The charts are attached, marked attachment "A".

Rob, Chuck Ivie and Mike Devirian attended the User Integration Panel and User Operations Working Group meetings in Cocoa Beach last week. The UIP meeting was chaired by Bob Clark/SSU. The next meetings are set for February (Reston) and May (MSFC). The PDR is now slated for the September/October timeframe; most Program elements (accommodations) are now either "set in concrete" or will be soon. Other interesting items from the meeting:

- the JEM exposed facility has space for 10 "small-to-moderate-sized" payloads, of which four or five spaces are allocated to the US
- the Columbus module will have a scientific airlock for payloads; the US has been allocated 50% of the airlock's time and space
- per Randy Tilley/SSU (formerly KSC), the STS and station safety review process will be combined into a single Payload Analytical Integration (PAI) function (though large payloads, such as Astromag, will need to go through a separate Shuttle integration process). There will be one set of documentation for integration. The space station will have a standard Payload Integration Plan (PIP) with the Shuttle, so the user will not have to have his own. The flow is shown in the three charts, attached and marked attachment "B". Note that each payload starts after being put into the Consolidated Operations and Utilization Plan (COUP), then it is put into the Tactical Operations Plan (TOP, where it is assigned to a specific mission increment) after the payload's Critical Design Review, approximately two years prior to launch
- as in the OTF plan, the Payload Accommodation Manager is to be the single point-of-contact between the user and the Program. There will not be a mission manager focus, as with Spacelab, or an element manager
- "telescience" is no longer a "dirty word" and seems to be getting serious attention again
- "Science and Technology Centers" are now called "Payload Integration Centers" and will be developed by users (e.g., OSSA) and certified by the Program for certain test and integration activities

- a "first" UDAWG meeting has been scheduled for December 12-13 in Reston. Rob will be assigning a regular JPL representative to attend UDAWG meetings. Contact Rob if you are interested in being designated, or if you wish to attend for any other reason.

At the Evolution Working Group meeting (attended by Rob, Paul Henry and Richard Beatty), also held in Cocoa Beach last week, it was announced that NASA is asking for \$400M for the "Human Exploration Initiative" (HEI) startup in FY 90. Richard Truly briefed the National Space Council on HEI last week (Cabinet level, scheduled for 30 minutes), and will be spend two more days briefing a "Blue-Ribbon committee". The propulsion for Mars, incidently, will be all chemical, not nuclear. Propellant transfer in Earth orbit will only be done by moving full tanks -- no pumping. Some pumping will be done in Mars orbit. Four program options are being presented:

- a "schedule-driven program" for a first landing on the Moon in the 2004-2008 timeframe. However, this does not fit into the present station schedule, which Truly does not want to accelerate
- a "technology program with schedule constraints" for a first landing ~2010
- a "budget-constrained" program, with a 3, 5 & 7% annual growth of NASA
- a "technology program with no dates" - a face-saving way out for the President which does not fulfill HEI objectives.

No consideration is being given to going to the Moon without stopping at the space station.

While in Cocoa Beach, Rob met with several people:

- Karen Brender/LaRC, who will be setting up a meeting with KSC, JPL and LaRC regarding robotics work. Jeff H. Smith should contact her about this
- Barry Meredith/LaRC, who notes that there is an Ada-based DOD information system simulation model in existence that may be suitable for SSIS modelling. Tom Handley will check on it to see if it will be useful for the station
- Remer Prince/SU, who advises that money is budgeted as requested for a rewrite of Laura Steele's *Introduction to Utilizing Space Station Freedom*, which has been in progress since FY 87, but delayed several times by Program changes. Remer also invited Rob to come see him in January to solicit other work for JPL. Contact Rob if you have any Level I task ideas
- Al Holt/SSU. Al wants to fund more work from JPL. He has already funded further EMI/EMC work for this year. He may need further support for his PDR preparation
- Phil Cressy/EM. Phil indicated a target funding range for JPL. It is not fully consistent with our level of work for the OSSA Science Utilization Management (SUM) team. Rob will discuss this with Phil using information Fitz has prepared. Rob also suggested that Gary Wicks/MSFC (SUM team leader) be asked to provide support for further tasks he assigns to JPL.

Camille Hayes reports that accounts 510-20205 and -20206 are overrun and have been closed.

The LDEF retrieval mission is on track for a December 18th launch.

An unclassified version of the revised national space policy was released by the White House last week. Rob will try to get a copy.

Bing Chen/Hershaw Fitzhugh

Bing and Fitz are working on the space station version of MSFC's MROFE -- the *Mission Requirements on Payloads/Facilities/Experiments* document (pronounced "em-ROE-fee"; see description in the 23 Oct minutes). They have finished work on a high-level mission integration flowchart. In doing this, they found the MROFE describes a well-designed approach, even though users have complained about it in the past. A closer look reveals the problem: MSFC does not require enough up-front information from users, so they come back to the user for more information later, upsetting the user's schedule.

Tom Handley

Tom has sent a new work package agreement for SSIS architecture and FROST modelling support to Reston. Tom has been working on a review of an end-to-end information system architecture strawman document; after this first go-around, it will be distributed to Level I & II. The strawman describes two levels: very cursory, and very detailed. Tom's review will be completed in about two weeks.

Tom is also supporting the production of the COUP by helping to join several planning data bases together. This is for Stu Friesema, a JPL detailee at Code SU.

Dick Grumm

While users as a whole are getting fairly good resource availability information, *individual* users are getting little information on what will be available for particular payloads. For instance, Dick isn't sure what power level his payload will be getting, or whether he'll be able to operate once per week or once per quarter. This lack of detail seems to be affecting all users. He has made his concerns known to his Code EN contacts; Rob suggests that they be expressed to our Code EM, SSU and PE&A contacts too.

Dick got a large stack of EMC specifications from Code EN. The information isn't new, but it is in a new format which will cause users more work to adapt their input. Dick is getting assistance from Jerry Murphy/521 to implement the new info.

Dick has been telling his contacts that if operations will be done only at MSFC, then MSFC will have to staff the center since JPL won't be supporting long-term travel there. Charles Elachi has reassured JPL users that JPL payloads *will* be operated from JPL.

Dave Nichols has moved to a new job, so Art Zygielbaum is looking for a replacement (although Amy Walton has already taken over his telescience work).

Hershal Fitzhugh

Lennard Fisk gave the go-ahead on November 16 "to proceed with all the attached payload flight projects, and all the concept studies." Fisk will review the status of the flight projects before proceeding with Phase C/D hardware development and will decide then which payloads will continue development.

In other interesting news, Robert Rhome had something to say regarding a plan to use OSSA flights to launch virtually all user racks to the station, at least in the first few years. "I'm going to fix that," he said. "Effective immediately, all OSSA discussions and documentation will refer to the OSSA flights to the station as 'Science Utilization Flights (SUF)'. I discarded the notion of calling them User Utilization Flights because I know who the user is and what s/he wants to do with it -- not stowage, not outfitting, not logistics -- science... and we will accommodate our own requirements on the SUF flights. Please help to pass the word that we have SUF flights in our utilization planning and that we expect the station to provide the upmass for all the racks cited in our Utilization Plan."

Fitz sat in on a meeting with Robert Koontz/PE&A, who stopped by Section 374 to discuss a proposed system verification task. One issue that came up: with 28 assembly flights, where is the station's guidance coming from? How will these 28 (or more) flights be controlled -- they will have 28 crews, 28 management teams and 28 support teams. It will be a logistical nightmare.

Paul Henry

Paul's final report to Code ST on the FY 89 trajectory task is nearly complete. Paul owes Randy some final input and charts, which he will get to Randy this week. Randy expects to get the report out the door 24 hours later.

Preliminary budget marks for Paul and Jeff H. Smith's Code ST tasks had been zeroed for FY 90, but Paul is now expecting some funding as a result of discussions with Code ST at the EWG meeting in Cocoa Beach last week. The funding will not be at the level requested in the earlier Code S POP exercise, but should be sufficient to maintain JPL's participation in these activities. Brian Pritchard/LaRC and Karen Brender committed to specific amounts based on revised draft POPs Paul brought to the meeting. No new funding will arrive at JPL for at least 30 days.

The Station Evolution Symposium now has a firm date: February 6-8 at the South Shore Hilton hotel near JSC.

Paul met with Brian Pritchard while in Cocoa Beach. Brian is happy with the work to date on the Mars entry tasks (including the Mars trajectory video). Work is about half completed on these tasks.

Lubert Lujer/JSC has responded with some mild criticism to the contamination report we recently issued. Jerry Millard is drafting a reply.

Paul and Jeff H. Smith delivered their input to Steve Cook for Code ST's Transition Definition annual report.

Upcoming Meetings

November 27-29: SUM team Director's Review/Mission Manager Review in Galveston. Kristan Lattu, Hershal Fitzhugh and Bob White to attend.

November 28-30: Loads & Dynamics Working Group meeting at Rocketdyne Canoga Park. Sima Lisman to attend.

December 12-13: User Design Accommodations Working Group (UDAWG) meeting in Reston. Rob Staehle, Sima Lisman, Bob Laskin, Hershal Fitzhugh and Paul Henry to attend (attendance may be reduced).

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivier to present.

February 6-8 (new date): Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

February TBD: User Integration Panel meeting in Reston. Rob Staehle to attend.

May TBD: User Integration Panel meeting at MSFC. Rob Staehle to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AVIATION WEEK & SPACE TECHNOLOGY, NOV. 6 James Asker

"The latest changes in plans for a U.S./international space station have rankled Japanese and European space agencies and led to criticism from members of Congress."

AV WEEK reports that the critics express personal confidence in the leaders at the top of NASA and its Space Station program. However, they are frustrated with the "frequency of management turnover," and complain of being informed too late of design and program changes.

The magazine says Rep. Robert Roe, chairman of the House Committee on Science, Space and Technology, complained of going to other members of congress and urging them to appropriate the full amount NASA requested for the station only to be informed the agency itself later scaled back the project in the face of impending budget cuts.

AV WEEK says European, Japanese and Canadian officials said that a prime irritant has been the way NASA has undertaken its latest Space Station review.

"They didn't bring us in from the start. They essentially carried out the Langley process without us and then presented us a list of options," Ian Pryke, the head of the European Space Agency's Washington office, said.

The magazine reports Walter Kroell, the chairman of the German Aerospace Research Establishment, agreed, but also said he believes the program is making technical progress.

"From a technical point of view, the station is sound. The question is, what potential is there for utilization?" Kroell said.

"I've been here four years," Tak Kato, the director of Japan's liaison office at the Space Station program office in Reston, said, "and every year, we slip a year. Partly, I think it's budget, but it's also management." Kato said the delay for launching the Japanese laboratory module to February, 1998, is "acceptable" because it remains within the same fiscal year for his government.

AV WEEK reports Pryke said a trip planned by Associate Administrator for Space Space William Lenoir to Europe this week should help ease discontent within ESA.

"We are close to satisfying the essential demands of the partners and the users," NASA administrator Richard Truly told Roe's committee last week.

AEROSPACE DAILY, NOV. 9

"LENOIR DETAILS SPACE FLIGHT, STATION OFFICE CONSOLIDATION"

"Consolidation of NASA's Space Flight and Space Station offices into a single organization will result in increased coordination and clearer lines of responsibility, William B. Lenoir, associate administrator of the combined office, said yesterday."

The DAILY reports Administrator Richard Truly announced plans to consolidate the two offices during the summer as a way to better integrate planning for Shuttle use in assembling and servicing the Space Station. The Office of Space Flight under Lenoir and Deputy Associate Administrator George Abby will include Space Shuttle, Space Station, Space Flight Systems and Human Resources and Institutions.

"The consolidation provides a structure within which the leadership and accomplishment of assigned programs and space transportation will be assured," Lenoir told employees during a NASA Headquarters briefing. "The division of responsibilities is clear and the mechanisms to assure coordination are in place."

The DAILY reports Robert Crippen is acting director of the Shuttle program and Richard Kohrs is the director of the Space Station program. Joseph Mahon is director for Flight Systems and Richard Wisniewski is director for Human Resources and Institutions.

The paper reports Lenoir said the Shuttle program organization will continue to operate divisions for program plans, system engineering and analysis, and operations utilization. Two deputies, one for program and one for operations, will continue working from Johnson and Kennedy Space Centers. Space Station program management will be consolidated at NASA Headquarters and the program office in Reston, Va. The program director's office will oversee engineering, operations and policy. Deputy Director Robert Moorehead and the deputy for operations will remain at Reston and a deputy for integration will be at JSC.

The deputy for integration will be supported by two field offices, with a manager for element integration at Marshall Space Flight Center and a manager for systems integration at JSC. Staff offices for system engineering and analysis, management integration and safety, reliability and quality assurance will remain at Reston.

The DAILY reports Lenoir said no major organizational changes have been made within the Space Flight Systems Division. The Human Resources and Institutions organization will retain responsibility for manpower, facilities and other institutional resources.

NEW YORK TIMES, NOV. 14

"LAB OFFERS TO DEVELOP AN INFLATABLE SPACE BASE" William Broad

"A team of scientists from Lawrence Livermore National Laboratory wants the nation to build an inflatable space station, Moon base and deep space probe in an attempt to slash the cost of sending Americans to Mars from \$400 billion to \$40 billion. Moreover, the Livermore team says the Mars endeavor could succeed within 10 years, not the 30 years usually envisioned."

The TIMES reports details of the plan were disclosed in the current issue of "Space News." It said the Livermore team had brought the plan to the attention of the White House National Space Council.

The paper reports a council official said the Livermore idea was being taken seriously. "We're very, very interested in forcing the system to come up with robust alternatives to conventional thinking," the official said.

The TIMES reports the Livermore plan, dubbed "The Great Exploration," would cut costs to around \$40 billion by developing a large, cheap unmanned rocket and by erecting a series of inflatable space structures whose walls were reinforced by Kevlar, a strong, lightweight fiber.

The paper says Livermore's plan is for NASA to launch an Earth orbiting inflatable station on a single rocket in 1992. It would consist of seven modules, each 16 feet wide and 49 feet long, and would house a crew of five. In 1994, similar inflatable modules would be assembled into a Moon base, where astronauts would convert lunar soil into fuel for a mission to Mars. In 1996, a 64 ton Mars expedition vehicle would be launched into low-Earth orbit, then inflated and assembled. Flight time to Mars would be 305 days.

The TIMES reports "Space News" said NASA will finish an assessment of the Livermore idea within a month. "Space News" said NASA is considering awarding a contract to Livermore for further study of the idea.

UNITED PRESS INTERNATIONAL, NOV. 13

"NASA will brief Vice President Dan Quayle this week on a plan that calls for a nuclear-powered manned moon base by 2004 and a space station mission to prepare for a Mars landing by 2015, it was reported Monday."

UPI reports "Space News" said NASA's report resulted from a three month study that ended Nov. 1 but White House officials consider it more of a reference document for options than a final outline for exploration. "Space News" said NASA officials will brief Quayle on Friday.

UPI reports "Space News" said Douglas Handley, deputy chief of NASA's exploration office, said to prepare for manned missions, NASA would launch the Mars Observer probe mission in 1992, followed by a 1996 Lunar Observer mission with two sub-satellites to look for water on the moon's poles and possible landing sites. In order to construct a moon base between 2001 and 2004, NASA first would build three or more combined moon transfer and excursion vehicles at the Space Station. The transfer portion would carry cargo and humans to lunar orbit and the excursion module would land them on the surface. These lunar vehicles would be used to establish an initial base to house a crew of four for one month. Eventually, the outpost would house a crew of 12 for up to a year.

The story reports "Space News" said assembly of a Mars vehicle would require six or seven flights of a new heavy lift launch vehicle. Astronauts could reach Mars between 2010 and 2015 and could stay 18 months at a time.

WASHINGTON POST, NOV. 17

"QUAYLE TO GIVE NASA COMPETITION ON IDEAS FOR SPACE EXPLORATION" Kathy Sawyer

"When members of the National Space Council, which includes the heads of major departments, assemble at the Old Executive Office Building this morning for a NASA briefing on how to go to Mars, Vice President Quayle will have a surprise for them."

The POST reports White House aides said yesterday that Quayle has directed the space council staff to give serious consideration to a rival proposal based on "inflatables" in space and to open a competition for money-saving ideas for human exploration of the Moon and Mars.

"I expect it'll be a lively meeting," said a White House official who asked not to be named. He described it as the first "roll up your sleeves, here we go" meeting on space exploration.

The POST reports the council staff is studying a proposal that claims it could put humans on Mars faster (in ten years) and more cheaply (for \$10 billion) than NASA by using inflatable space modules. The concept comes from a team of scientists from the Lawrence Livermore Laboratory in California. (see Daily News In Brief 11/14).

The paper reports Douglas O'Handley, deputy director of NASA's office of exploration, said of the Livermore proposal, "I'm amazed it would be taken, as a package, seriously. If it is, it's by an individual that doesn't understand space risks." He added, "We have no problem with a fair competition."

The POST says the White House official praised the Livermore proposal for its inventiveness and described it as "very different" from the NASA proposal in terms of its approach to technology.

The paper reports the Livermore concept, which would put into orbit a "stand alone" station consisting of seven modules to be inflated in orbit with walls reinforced by Kelvar, would appear to challenge NASA's current plan for the international Space Station Freedom. Freedom would be made of aluminum and other more conventional rigid structures.

The POST reports David Beckwith, a spokesman for Quayle, said the competition should not be considered a threat to the NASA space station. He noted that President Bush, in his July 20 speech calling for a space exploration initiative, cited the NASA station as the first step.

"It's going to be built," Beckwith said. "The question is: Does it become the basing mechanism for Mars or is there a cheaper basing mechanism?"

The POST reports the White House official said an inflatable station could follow the NASA station into orbit, or inflatable modules might be attached to the NASA structure.

AEROSPACE DAILY, NOV. 20

"WHITE HOUSE ISSUES UNCLASSIFIED VERSION OF NATIONAL SPACE POLICY

"An unclassified version of the revised national space policy released by the White House includes stronger support for commercial space ventures and human exploration of the solar system but otherwise contains only minor technical changes."

The DAILY reports the updated policy, approved by President Bush Nov. 2, was the result of a review by the National Space Council. The classified policy was approved as the first National Space Policy Directive and is the first time the policy, issued under President Reagan, has been released in an unclassified version.

The paper reports the document includes 24 specific language changes made to clarify, strengthen and streamline policy aspects relating to civil and commercial remote sensing, space transportation, space debris, federal subsidies of commercial space activities and the Space Station.

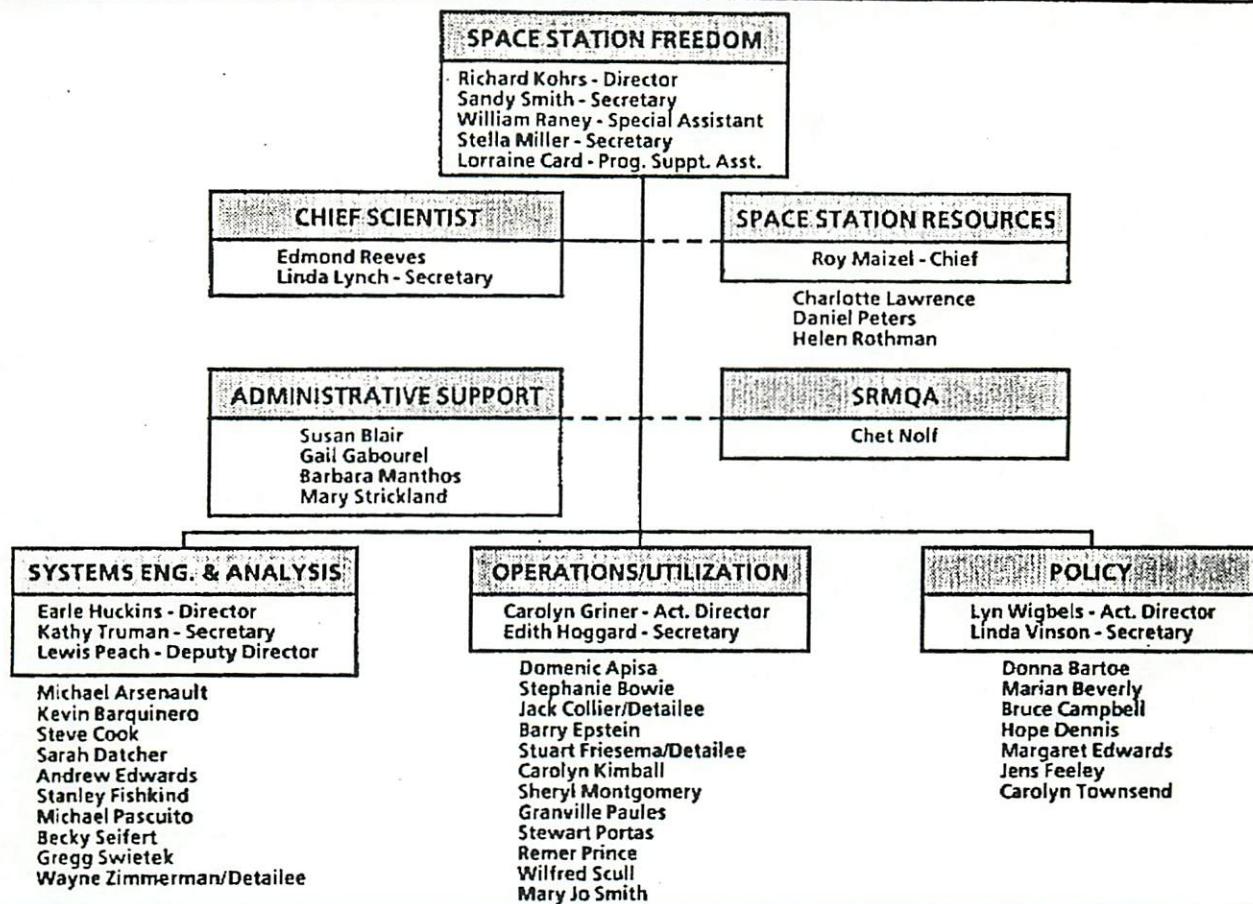
The DAILY reports under the commercial space policy, the document said the U.S. "shall not preclude or deter the continuing development of a separate non-governmental commercial space sector." The policy also calls on the government to purchase commercially available space goods and services "to the fullest extent feasible" and not to hinder activities "with potential commercial applications that preclude or deter commercial sector space activities except for national security or public safety reasons."

The paper reports the policy also calls for a permanent manned presence in space, U.S. preeminence in manned spaceflight, and "systematic development of technologies necessary to enable and support a range of future manned missions," specifically mentioning NASA's Pathfinder advanced technology development program as developing technology needed for Bush's Moon and Mars initiatives.

SPACE STATION FREEDOM



Attachment "A"

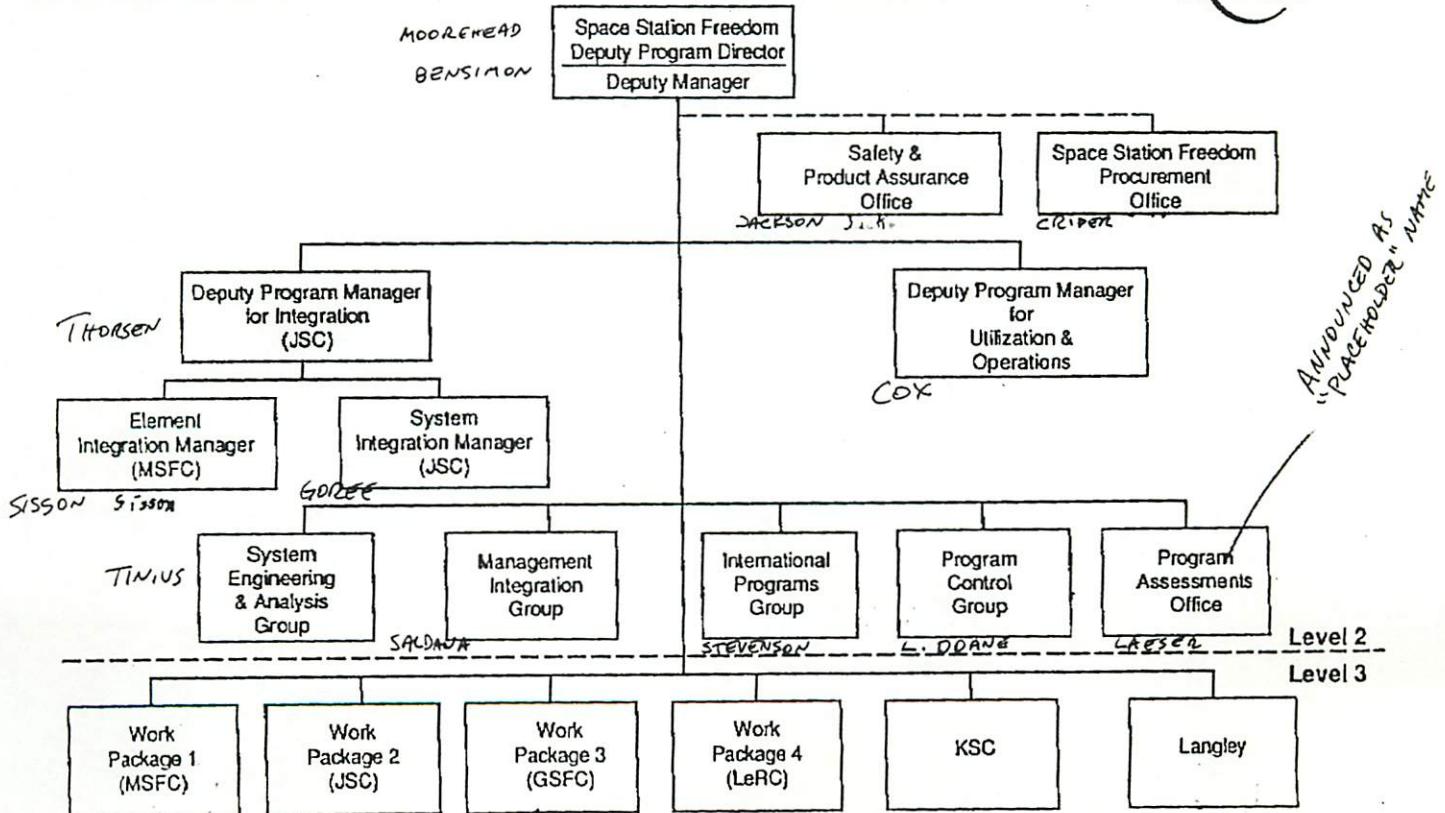


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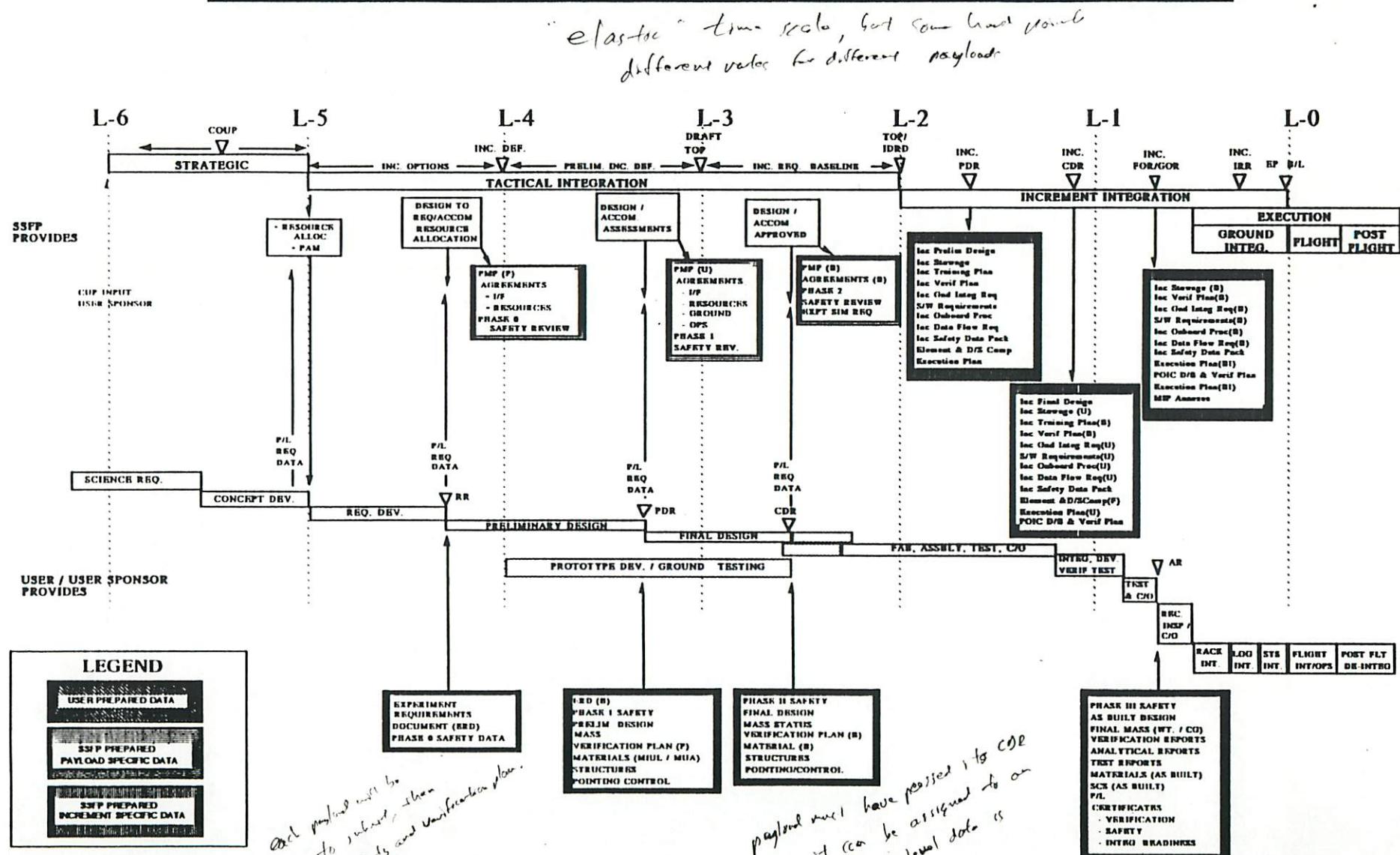


Space Station Freedom Program Office



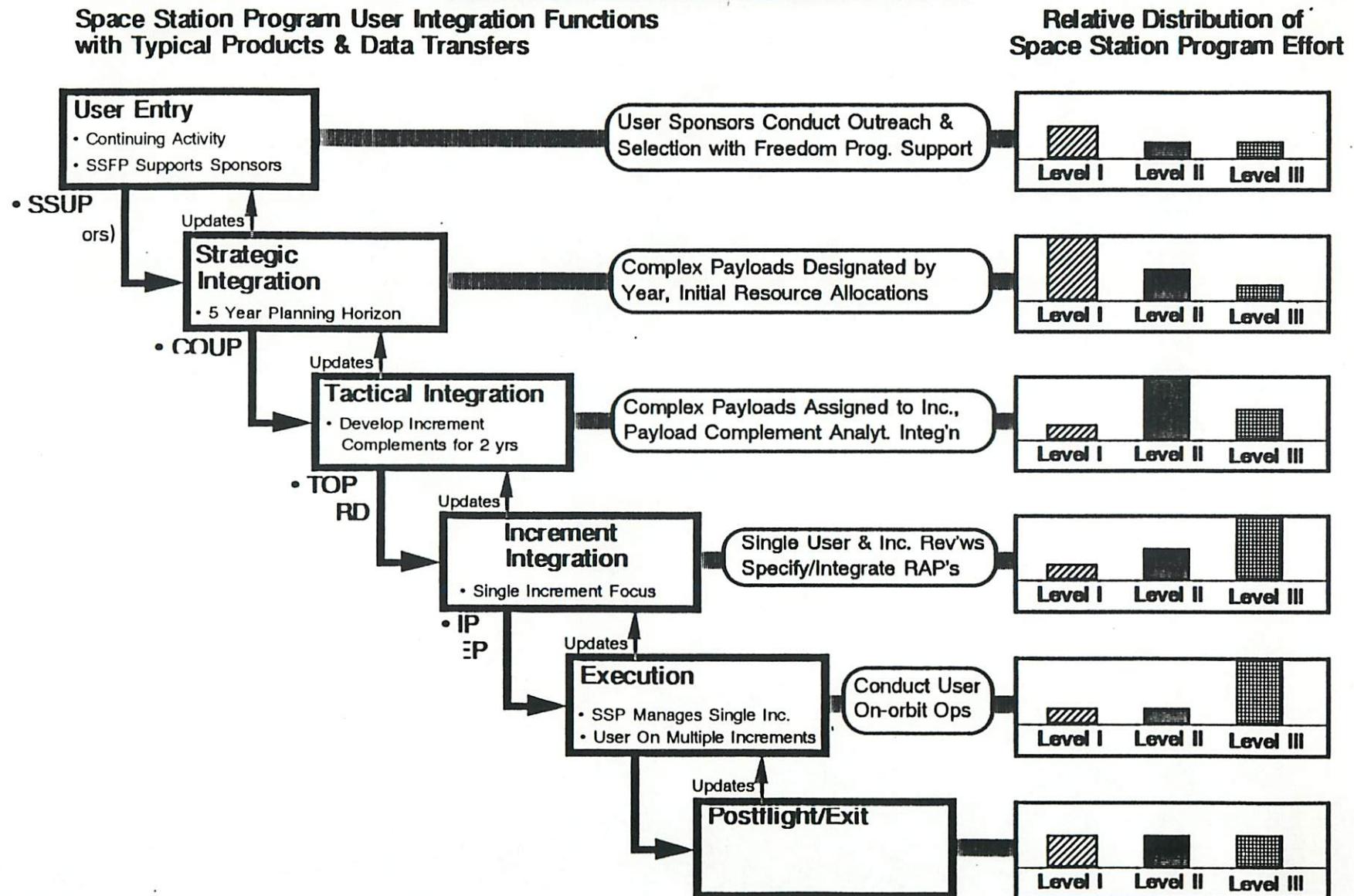
Space Station User Integration Process

Strawman Facility Class Integration Timeline



Space Station User Integration Process

User Integration Flow

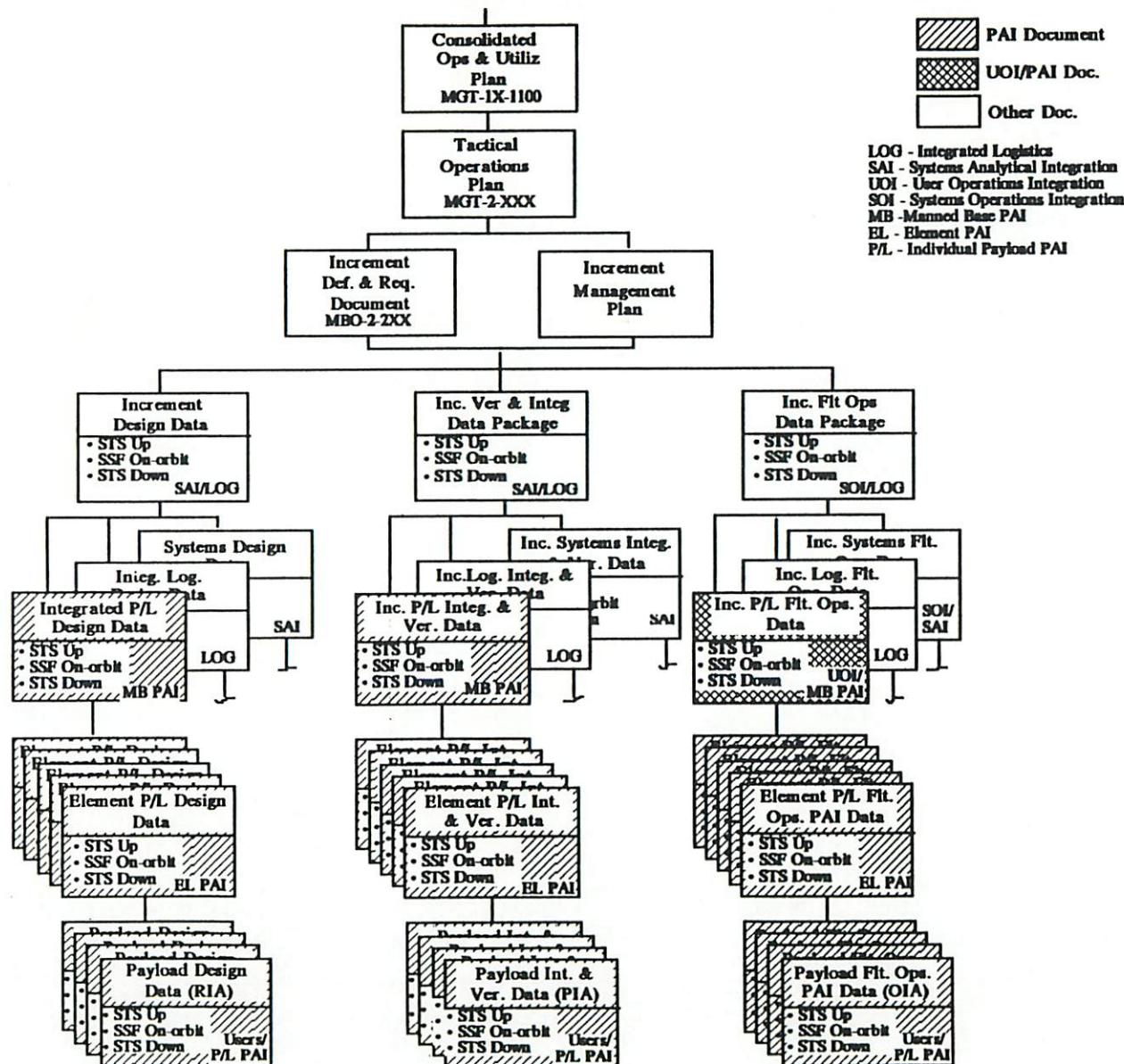


B-3

Payload Analytical Integration

Operations Execution Documentation

OPERATIONS EXECUTION DOCUMENTATION



Space Station Utilization Team Weekly Meeting Minutes

Distribution	Sec	Mail Stop	Phone	NASAmail	TELEmail
Arnett, James	521	301-466	4-9282		JArnett
Beck, Andy	521	301-466	4-4575	AJBeck	
Beck, Hank	120	Reston	8-457-7648	Hank.Beck	
Beatty, Richard	120	Reston	8-457-7592	RBeatty	
<u>Borden, Chet</u>	<u>311</u>	<u>601-237</u>	<u>4-1238</u>		<u>CBorden</u>
Breckinridge, James	385	169-314	4-6785		JBBreckinridge
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Chen, Bing	355	67-201	4-5353	CPChen	
Coffin, Dick	317	233-208	4-3730	RCoffin	
Colavita, Mark	385	169-214	4-7835		
Das, Radhe	342	303-300	4-9736		
Deshpande, Govind	311	601-237	4-1279	GDeshpande	
Devirian, Mike	120	Reston	8-457-7209	MDevirian	
Doane, Jim	311	601-237	?-????	JDoane	
Easter, Bob	120	Reston	8-457-7211	REaster	
Elachi, Charles	700	180-703	4-5673	CElachi	CElachi
Fitzhugh, H.L.	374	179-206	4-6906	HFitzhugh	HFitzhugh
Frederick, Suzanne	311	171-258	4-1181	SKFrederick	
Friesema, Stuart	720	HQ/SU	8-453-1184		
Gabriel, Steve	521	301-460	4-4952		
Garrett, Hank	521	301-456	4-2644		
Glavich, Tom	385	169-314	4-3952		
Goranson, George	521	122-113	4-2809		
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Handley, Tom	366	301-440	4-7009	THandley	THandley
Hansen, Bert	347	303-308	4-6092	BDHansen	BDHansen
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Mahoney, M.J.	383	168-327	4-5584	MJMahoney	
Martin, Benn	780	264-648	4-8263	Benn	NSCAT
Masline, Richard	366	301-440	4-4889	RMasline	
Mattingly, Richard	313	233-302	4-4605	RMattingly	
Maund, Don	311	2158 LaJolla Dr, Stockton, CA 95204			MHumfreville
McGraw, Ken	311	601-237	4-1121		
Millard, Jerry	354	89-1	4-2898		
Muirhead, Brian	352	158-224	4-8179	BMuirhead	
Murphy, Gerald	521	301-460	4-6930		
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Paul, Lori	311	601-237	4-1166	LPaul	
Pomphrey, Rick	317	233-208	4-3890	RPomphrey	
Pravdo, Steve	381	168-222	4-3131	SPravdo	
Rayman, Marc	331	161-135	4-2544		
Rosenberg, Leigh	311	601-237	4-1251	LRosenberg	
Sergeyevsky, Andrey	312	301-165	4-7622		
Schlue, John	521	301-466	4-7318		
Schober, Wayne	881	180-603	4-8581	WSchober	
Schutz, Frank	790	183-801	4-5738	FSchutz	
Shao, Mike	385	169-214	4-7834		
Sharma, Jayant	312	301-165	3-9616		
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Varsi, Giulio	880	180-603	4-2992	Varsi	
Volkmer, Kent	311	171-258	4-1240	Volkmer	
Von Gronefeld, Peter	120	Reston	8-457-7649	PVonGronefeld	
Vuolo, Bob	120	Reston	8-457-7587	RVuolo	
Wada, Ben	354	157-507	4-3600		
Webb, Allan	120	Reston	8-457-7589	AWebb	
White, Robert H.	784	264-648	4-6786	RHWhite	
Wiener, Paul	310	301-230	4-5748		
Wright, Frank	740	183-335	4-5690	FWright	FWright
Zenone, Ron	782	264-648	4-2543	RZenone	RZenone
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For additions or changes to this list, contact Randy Cassingham

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.4-414

27 November 1989

TO: Distribution 

FROM: Randy Cassingham 

SUBJECT: SS Utilization Team Minutes for 27 November 1989

PRESENT: Rob Staehle, Randy Cassingham, Paul Henry, Sima Lisman, Richard Grumm, Tom Handley

Next Meeting: 04 December 1989 at 10:30 in 301-271

Would you be Interested in getting the minutes via NASAmail instead of on paper? This would speed delivery of the weekly information and reduce the distribution burden on my secretary. (Handouts and attachments would continue to be sent on paper.) If you would like to switch, please let me know at NASAmail = RCassingham. Thanks.

Rob Staehle

Leigh Rosenberg, Jerry Olivier, Ken McGraw and Dick Levin received commendation for their latency study work from Al Webb. Rob sent his personal kudos (in the form of the candy bars of the same name) to the four of them.

Kristan Lattu is presenting her payload life extension work at the Science Utilization Management Director's Review/Mission Manager Review meeting, which starts today in Galveston.

John Kalvinskas/354 is trying to reignite interest in an "Assessment of Environmental Systems" task that was originally solicited by Dana Brewer/SSE, but there is now no Code SSE money available for the task. Three areas have been discussed: comparing internal and external environmental requirements vs the capability of actual monitoring equipment; Process Material Management System and Fluid Management System issues; and toxic and reactive materials handling issues. If anyone has any funding ideas, contact Rob.

Barry Epstein, formerly of Grumman, is now with Code SU, working for Remer Prince. He is working on space station documentation and space station scheduling; he has been in contact with Randy Cassingham (regarding documentation) and Norm Reilly/311 (regarding RALPH, a computerized resource allocation and planning system he is engineering).

Steve Cook/ST notes that there is a hitch in funding for some tasks. NASA will have to submit plans for "congressional approval" (in truth, the plans are "approved" if Congress doesn't object within 15 days of plan submittal). He expects release of evolution studies funding to JPL on or after December 15.

Rob is sending a memo to JPL task managers regarding material Randy Tilley/SSU presented at the User Integration Panel meeting about payload analytical integration tools. Rob is soliciting task managers to think of new applications for our existing (or in-progress) modelling efforts. Task managers should contact Rob and/or Mike Devirian with ideas, or to arrange presentations to Randy and other SSU or EM staff.

Rob has information on a December 13th Space Business Roundtable luncheon with General James Abrahamson, formerly the head of the Strategic Defense Initiative Organization and now Executive Vice President for Corporate Development at Hughes Aircraft Co. Call Rob if you would like a copy.

Paul Henry

Paul is finishing up on his final report to Code ST on the FY 89 trajectory task. He will then get back to work on the Mars trajectory video.

Sima Lisman

Sima met with Dick Grumm last week to demonstrate her disturbance modelling tool. Dick is especially interested in displacement vs time charting, since displacement can be at least partially compensated for by his Modular Containerless Processing Facility, so Sima will be working on producing the charts this week. Dick mentioned that he is very pleased that the *form* of the vibration data is starting to mature so much; it is now becoming quite helpful in his payload planning.

Tom Handley

A revised work package agreement was submitted back to Bob Vuolo, who will be at JPL Thursday and Friday. Division 36 information systems work will have a component in support of the FROST task, plus additional architectural definition work in direct support of Bob's work at PE&A.

Upcoming Meetings

November 27-29: SUM team Director's Review/Mission Manager Review in Galveston. Kristan Lattu, Hershal Fitzhugh and Bob White to attend.

November 28-30: Loads & Dynamics Working Group meeting at Rocketdyne Canoga Park. Sima Lisman to attend.

December 12-13: User Design Accommodations Working Group (UDAWG) meeting in Reston. Sima Lisman, Bob Laskin, Hershal Fitzhugh and Paul Henry to attend (attendance may be reduced).

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

February 6-8 (new date): Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

February TBD: User Integration Panel meeting in Reston. Rob Staehle to attend.

May TBD: User Integration Panel meeting at MSFC. Rob Staehle to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

NEW YORK TIMES, NOV. 27

"SOVIETS LOFT AN ATTACHMENT FOR ORBITING SPACE STATION"

"After months of delay, the Soviet Union launched an attachment today (Sunday) for its orbiting space station Mir that has a "space motorcycle" and an experiment with Japanese quail eggs."

The TIMES reports however, the official Soviet news agency Tass said there were technical problems with the attachment, the Kvant-2 module, saying one of the two panels of its solar battery did not open fully and scientists were considering what to do next.

The paper reports the Kvant-2 contains a shower and sink, an air lock for space walks and an incubator in which Japanese quail eggs are to be hatched to study the effects of weightlessness on heredity. Also on board the module is a "space motorcycle," which looks more like a floating armchair. After the module docks with Mir on Dec. 2, the mission commander, Aleksandr S. Viktorenko, and the engineer, Aleksandr A. Serebrov, are to test the device outside. It is intended for repairing satellites and rescuing cosmonauts in distress.

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Zygielbaum, Art	750	180-701	4-3564	AZygielbaum	

For additions or changes to this list, contact Randy Cassingham

311.4-421

4 December 1989

TO: Distribution

FROM: Randy Cassingham 

SUBJECT: SS Utilization Team Minutes for 4 December 1989

PRESENT: Rob Staehle, Randy Cassingham, Kristan Lattu, Richard Masline, Paul Henry, Sima Lisman, Jeff L. Smith, Gerry Murphy

Next Meeting: 11 December 1989 at 10:30 in 301-271

Would you be interested in getting the minutes via NASAmail instead of on paper? This would speed delivery of the weekly information and reduce the distribution burden on my secretary. (Handouts and attachments would continue to be sent on paper.) If you would like to switch, please let me know at NASAmail = RCassingham. Thanks.

Rob Staehle

The "Human Exploration Initiative" has reportedly met a cool reception by Dan Quayle, apparently due to \$300+ billion cost, especially in comparison to the proposal made by the Lawrence Livermore Labs for the "inflatable" station (see minutes of 20 November, pp 6-7) and other lower-cost approaches to human exploration of the Moon and Mars. JPL should be looking for ways to come up with lower cost options.

The next UDAWG meeting is December 12-13. Immediately after that meeting, Sima Lisman will be demonstrating her disturbance modelling tool, a Terry Scharton/521 will make a presentation on VAPEPS (the Vibroacoustic Payload Environment Prediction System). A number of people will be invited today by PE&A, including representatives from Codes EM, EN, EZ, SSS, SSU, SU and SSE. Reston personnel are encouraged to attend, and to invite those in other Codes having an interest.

Subject to Mike Devirian's concurrence, Rob has designated Paul Henry as the JPL UDAWG (User Design Accommodations Working Group) representative; Hershal Fitzhugh is to be the alternate. It is unclear whether JPL's representation will be considered formal or informal.

At Bob Easter's direction, Mike Devirian has drafted guidelines for Pasadena-based support tasks. There are no surprises here; funding levels are already known by task managers. Rob will send task managers a memo when the guidelines are signed off. The information systems, payload accommodations, and ad hoc study tasks will be funded through OSSI.

Steve Cook/ST indicates that we're still on track to receive "keep alive" funding for our A&R and EWG/Planetary support tasks. Rob does not think the funding will come in until after Christmas, though.

After consultation with Rob, Bob White has negotiated Science Utilization Management team support levels with Phil Cressy/EM.

Rob has received a copy of the unclassified version of the National Space Policy. Contact Rob if you would like a copy.

The FROST (Freedom Operations Simulation Testbed) prototype should be demo'd to the SUM team so that we can solicit more development funding. Fitz and Jeff L. Smith will be talking about scheduling a demo at the February meeting. Jeff and his team will be in Reston on Thursday for a FROST review. One new topic will be a discussion of implementing FROST on the JPL Hypercube using the Timewarp operating environment. Hypercube is a distributed set of 80386 processors, while the Space Station Information System is to be a distributed set of nodes controlled by 80386 processors.

Rob, Bob Vuolo and Tom Handley met last week regarding plans for Division 36's Information Systems Architecture task. Rob, Tom and Jeff L. Smith will meet later today about the relationship between this and the FROST task. One topic will be preparation for an ESA visit this Spring to discuss mutual information system concerns.

Mike Devirian has been asked to oversee our EMI/EMC tasks. Work package agreements are currently being finalized by Andy Beck, and should be out by next week. An earlier WPA had been drafted in response to Al Holt/SSU's expectation of a larger budget. Additional funding for the tasks is being sought from Code SSS; past funding has been from Code SSU.

Kristan Lattu

Kristan presented her payload life extension paper at the Science Utilization Management Director's Review/Mission Manager Review meeting last week in Galveston. Robert Rhome/E was particularly interested in the work, and is interested in having the task continue; he would like to see a decision tree for experimenters, and more work on payload classification being led by Valerie Thomas. The level of involvement, and possible funding, has not yet been decided.

Kristan noted that at the meeting, there is still quite a bit of confusion as to the current status of the station (as to baseline decisions, etc.) and the impact of "rephasing".

Paul Henry

Dark forces have conspired to delay Paul's final report to Code ST on the FY 89 trajectory task. Final, final changes have been delivered to Randy, who hopes to have the report to the printer late Tuesday or early Wednesday.

Paul is currently putting most of his time into the Mars trajectory video, trying to get it finished in time for the February Station Evolution Symposium at JSC. It is a tight deadline to meet, but Paul thinks it can be done.

Gerry Millard has sent Bob Easter his reply to comments made by Lubert Lujer and Horst Ehlers of JSC about the station contamination paper. (The letter was sent to Dana Brewer, forwarded to Bob Easter, then to Paul. It is now going back through the same route.) The JSC letter was not especially critical, but several concerns were raised which are being answered. The JSC critique did not appear to account for cooled instrument detectors which could be affected by contaminants re-emitted after the Shuttle's departure.

Dick Levin and Leigh Rosenberg have come on board to help with defining and costing the stand-alone kit for payload accommodations.

Sima Lisman

At the Loads and Dynamics Working Group meeting last week, a new assembly sequence was shown. It was fairly detailed, and consisted of 28 flights.

Randy Cassingham

Several people have opted for NASAmail delivery of the minutes. Thanks.

A new edition of *Station Break*, the Code S space station newsletter, has been issued, and Randy obtained a number of copies. They will be enclosed with the minutes until the supply is depleted.

Upcoming Meetings

December 12-13: User Design Accommodations Working Group (UDAWG) meeting in Reston. Sima Lisman, Bob Laskin, Hershal Fitzhugh and Paul Henry to attend.

December 12-13: Operations Management System Working Group meeting in Houston. Richard Masline to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Kent Volkmer to attend.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivieri to present.

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May TBD: User Integration Panel meeting at MSFC. Rob Staehle to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, NOV. 28

"SOVIETS CONSIDER EVA TO FIX SOLAR ARRAY ON KVANT-2"

"A solar array aboard the Kvant-2 replenishment module, launched by the Soviet Union Nov. 26 from Tyurantam on a Proton booster, failed to open and mission managers are considering allowing cosmonauts aboard Mir to unfurl it manually after it docks with the space station Dec. 2."

The DAILY reports mission controllers made several unsuccessful attempts to unfurl the second of the module's two solar arrays about two hours after launch when it passed over the Caspian Sea, Tass said. If the array cannot be deployed automatically, Kvant-2 would be raised and docked with Mir and cosmonauts Aleksandr Viktorenko and Aleksandr Serebrov would likely conduct a spacewalk to pull it free, Tass said yesterday.

The paper reports Kvant-2 is 13.73 meters long, and 4.35 meters in diameter. It carries food, water and fuel, new instrumentation for the station, an airlock and an Icar manned maneuvering unit.

AEROSPACE DAILY, DEC. 5

"DOCKING SYSTEM MALFUNCTION DELAYS KVANT-2, MIR RENDEZVOUS"

"Soviet ground controllers succeeded in freeing a jammed solar array, but a malfunction in the automatic rendezvous system has delayed docking of the Kvant-2 re-equipment module with Mir until Wednesday."

The DAILY reports the module was scheduled to dock with Mir Dec. 2, but encountered a problem almost immediately after separation from its Proton booster Nov. 26 when one of its two solar arrays failed to deploy. Controllers reoriented the spacecraft's remaining array toward the sun and managed to free the jammed array Dec. 1.

The story reports an unidentified problem with Kvant-2's automatic rendezvous and docking system forced another docking delay Dec. 2 when a motor burn on Kvant failed to put it in the proper orbit to rendezvous with the space station. An attempt to maneuver Mir toward the module was also aborted when the station's computers overloaded, Tass said.

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JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

311.4-422

11 December 1989

TO: Distribution

FROM: Randy Cassingham *RC*

SUBJECT: SS Utilization Team Minutes for 11 December 1989

PRESENT: Rob Staehle, Randy Cassingham, Chuck Ivie, Richard Grumm, Bing Chen, Dennis Kern

Next Meeting: 8 January 1990 at 10:30 in 301-271

Would you be interested in getting the minutes via NASAmail instead of on paper? This would speed delivery of the weekly information and reduce the distribution burden on my secretary. (Handouts and attachments would continue to be sent on paper.) If you would like to switch, please let me know at NASAmail = RCassingham. Thanks.

Note: Due to travel and holidays, the next Space Station Utilization Team meeting will not be held until 8 January. Have a good holiday.

Rob Staehle

Paul Henry, Sima Lismann and Hershal Fitzhugh are all at the UDAWG meeting, and Dick Masline is at the OMSWG meeting.

OAST and the AIAA are sponsoring the second "Technology for Future NASA Missions Conference" in Tysons Corner April 2-3. The objective of the conference is "to provide industry and university executives an overview and interactive review of the NASA OAST space technology programs." The AIAA contact for more information is Rosie Patterson at (202) 646-7453.

Rob has a copy of the 160 page *Report of the 90-Day Study on Human Exploration of the Moon and Mars* should anyone wish a copy. [Note: see news items at end of minutes.]

Mike Devirian sent Rob a copy of the paper *System Telemetry Utilization Concept (STUC)* from the Data Information and Systems Group at Level II, noting that he found it quite interesting. While the scope is limited to station systems telemetry, many of the concepts are recognizable from prior work on payload information systems. Chuck Ivie also received a copy.

Jayant Sharma is submitting a paper to the AIAA Astrodynamics Conference, to be held in Portland in August, titled *Asteroid Mission Launch from a Precessing Space Station Orbit*, a subset of the forthcoming paper *Planetary Exploration Departures from the Space Station: Trajectory Effects on Station Operations*, by Jayant, Andrey Sergeyevsky and Paul Henry, which should be distributed this week.

Chuck Ivie

Chuck is continuing to support the effort to improve the end-to-end information system architecture, including output for the FROST task. He is working on creating some fairly detailed subsets of the SSIS for modelling, and the preliminary data from test runs looks quite good. He found quite a lot of requirements data by looking through Science and Applications Information System (SAIS) documentation that was put out a year or two ago.

Chuck is working on an internal proposal for a task to look at high speed phenomenon-driven data extraction and analysis. It is believed that this could lead to an expert system to extract data that is of interest to the user, instead of simply compressing and returning all data (e.g., sending back the relevant portion of relevant video frames, rather than sending all portions of all frames). This task would be a tie-in to the optical computing task already in progress in Division 36. Orders-of-magnitude link capacity reductions could be the result.

Dick Grumm

Dick has received the data he requested from Sima Lisman regarding displacement vs time from Sima's disturbance modelling tool. The results conform well to what Dick was expecting. For example, an astronaut's push off a wall creates a .5mm displacement -- enough to push an object in the containerless processing experiment out of view of a microscope. This kind of information will be extremely helpful during the payload design phase; Dick was very complimentary of Sima's work. Dick feels that without this type of simulation of the effects of specific disturbances one-by-one that experiment design will be impossible. General aggregate disturbance spectrum requirements are not especially helpful.

Dick circulated a preliminary agenda for the Containerless Processing Workshop to be held at the Pasadena Hilton next month. Most space station-related items have been removed from the agenda; most of the initial ideas for containerless processing can no longer be accommodated by the station due to cutbacks in power, crew time and data link capability. However, Dick expects that many useful experiments can be designed that can take advantage of the pared-down accommodation levels. The Workshop is a good opportunity to stimulate thinking based on the new levels of resources.

Bing Chen

Last week, Bing and Dick Grumm attended a meeting at JPL chaired by Hershel Fitzhugh with representatives from MSFC regarding payload communications and information systems definition plans from an OSSA point of view. The Marshall folks, led by Harvey Golden (apparently the head of the ground operations portion of the communications and operations system), are on a tour of all NASA centers, and stopped at JPL first. They were given a tour of our Space Flight Operations Facility, which they seemed impressed with -- we stressed how all the different spacecraft we support are controlled from there, and that data from all three DSN sites are funneled back there. Dick notes that they are starting to sound more accommodating of our desire to control our own payloads from here.

The Drop Physics Module has gone through its critical design review. It should fly on the US Materials Lab (Spacelab USML-1) sometime in 1992. Its designers do *not* desire a station follow-on experiment for this payload; its current design calls for 150 hours of IVA time supported by 800 pounds of film -- clearly out of the realm of space station capability. It was ironic to note how much more capability Spacelab has than the station to support this kind of experiment facility. Some station shortcomings could be worked around with a tight, high capacity remote commanding loop to experimenters on the ground. Command latency time is critical here.

Dennis Kern

Dennis attended the Loads and Dynamics Working Group meeting in Canoga Park recently, and the Vibroacoustics sub-group meeting held immediately before, where he presented VAPEPS (the Vibroacoustic Payload Environment Prediction System). It was very well received. He talked

with JSC about funding some work with it, but was not encouraged -- they apparently do not have any funds available beyond what is earmarked for the work package contractors. Terry Scharton/521 will be giving an overview of VAPEPS this week at the UDAWG meeting in Reston.

At the Loads and Dynamics meeting, a big issue was STS docking loads. The current docking scenario shows an exhaust plume impingement on the solar arrays, possibly creating a load 15 times greater than designed for during docking. If the loading is actually that high, the panels would have to be redesigned -- "beefing them up" probably wouldn't be sufficient. Dennis notes that normally, design loads should be well defined by the preliminary design review (PDR). The problem has been brought up with operations personnel, but they have kept their requirements quite broad, which may exclude possible work-arounds, such as using the RMS to effect final closure, and minimizing use of forward-firing thrusters. (This led to a lengthy discussion during the meeting, centering on the dynamics of docking the 200,000 pound Shuttle with the 300,000 pound (assembly complete) station. How will such docking be accomplished without overstressing the docking structure? There was also some discussion regarding orbital debris. No one has heard much about it for some months. Perhaps the LDEF retrieval will spark new interest in this area. Particular concern was expressed regarding the apparent damage to Solar Max's cooling fins (from a returned part) by urea crystals. Solid urea is apparently rather stable in the orbital environment. If waste water is to be dumped from the station, this could seriously add to the debris problem for the station and other low-Earth orbiting craft.)

Upcoming Meetings

December 12-13: User Design Accommodations Working Group (UDAWG) meeting in Reston. Sima Lisman, Bob Laskin, Hershal Fitzhugh and Paul Henry to attend.

December 12-13: Operations Management System Working Group meeting in Houston. Richard Masline to attend.

January 16-19: OAST Technology for Space Station Evolution workshop in Dallas. Jeff H. Smith to chair Robotics portion.

January 17-19: Containerless Processing Workshop at the Pasadena Hilton. Richard Grumm to attend; Jerry Olivier may present latency study results.

February 6-8: Station Evolution Symposium at JSC. Paul Henry, Jeff H. Smith, Kent Volkmer, Wayne Zimmerman (HQ Detailee), Samad Hayati and Rob Staehle to attend.

February TBD: User Integration Panel meeting in Reston. Rob Staehle to attend.

May TBD: User Integration Panel meeting at MSFC. Rob Staehle to attend.

Recent Space Station-related items from Code L's "Daily News in Brief" (Typos not corrected...)

AEROSPACE DAILY, DEC. 8
"KVANT-2 MODULE DOCKS WITH MIR"

"The Soviet Kvant-2 re-equipment module docked with the Mir space station Wednesday and is believed to be operating properly, civilian observers said."

The DAILY reports the unmanned module, which carries supplies, new equipment and a manned maneuvering unit, was scheduled to dock Dec. 2 but was delayed when one of its two solar arrays failed to deploy.

The story reports Max White with the Kettering Group in England reported monitoring transmissions by cosmonauts Aleksandr Viktorenko and Aleksandr Serebrov relaying distance measurements from their Soyuz spacecraft attached to Mir. Cosmonauts retreat to the Soyuz during docking maneuvers as a safety precaution. White also heard the cosmonauts checking out the module on their next revolution after they had returned to Mir.

AEROSPACE DAILY, DEC. 11
"U.S. EXPERIMENT BOUND FOR MIR SPACE STATION DEC. 20"

"A protein crystal growth experiment developed by Payload Systems Inc. for the Mir space station will be launched Dec. 20 on board a Progress resupply ship."

The DAILY reports the first U.S. commercial experiment to be conducted on Mir will be activated Dec. 25 and will operate for 56 days in the Kvant scientific module. It will be deactivated Feb. 19, 1990 and returned to Earth Feb. 24. "This first mission will

verify the methods and establish a working relationship with the Soviets," said PSI president Anthony Arrott. "What remains is for companies to aggressively explore the opportunities offered by microgravity to further the rational design of drugs and other products here on Earth."

SPACE NEWS, DEC. 11

"SPACE COUNCIL BYPASSES NASA TO GET INDUSTRY MOON-MARS IDEAS" Andrew Lawler

"Vice President Dan Quayle, who chairs the administration's National Space Council, has criticized NASA's proposals on space exploration as bowing 'more to tradition than ingenuity' and he is bypassing the agency in a search for alternative ideas."

SPACE NEWS reports in a November 28 letter to Donald Fuqua, president of the Aerospace Industries Association (AIA), Quayle said, "We need to consider new ways of doing business," and he encouraged the AIA to "give us your best suggestions for proceeding with the mission to Mars and beyond."

The paper reports in a "veiled criticism" of the NASA report on human exploration submitted to the White House last month, Quayle said current plans are "bound by restrictions and policy" that he views as moribund.

SPACE NEWS reports administration sources say the space council wants to encourage alternative proposals on the lunar and Mars initiative without relying solely on NASA to filter them. The paper says legal restrictions prevent the council from formally soliciting industry proposals, so the council has turned to AIA as a middleman.

The paper reports Fuqua said that AIA's space committee, which is made up of 20 aerospace company representatives, will gather proposals during the next month and evaluate them through March. The results will then be forwarded to the council.

SPACE NEWS, DEC. 11

"NASA, SPACE COUNCIL SPLIT OVER MOON-MARS REPORT" James Fisher, Andrew Lawler

"The NASA report on lunar-Mars exploration options submitted to the White House National Space Council last month has created a deep rift between the two organizations."

SPACE NEWS administration officials have privately chastised NASA for preparing a report that some felt was unimaginative and did not adequately address new technologies that could dramatically cut costs for the venture.

The paper reports NASA officials have blamed the space council for the problems, saying that direction given to the agency was unclear. The paper says NASA Administrator Richard Truly brought up the problems at a meeting December 1 with Mark Albrecht, council executive director.

The story reports Truly told "Space News" that he and Albrecht discussed the relationship between NASA and the space council, but described the meeting as one in a series of regular get-togethers the two have had. He would not provide details about the discussion, but said, "When I first took this job, I made a pledge to the vice president ... that NASA was going to try to make the space council process work." He said the relationship is improving.

SPACE NEWS reports Truly presented the results of NASA's report at the November meeting of the full space council. Council members, including Richard Darman, director of the Office of Management and Budget, Energy Secretary James Watkins, and Donald Rice, secretary of the Air Force, asked "pointed questions" about technology. They raised the question of whether breakthrough technology could enable the mission to proceed.

The paper reports one official who attended the meeting, said the space council's position "is that we ought to move aggressively to force some technologies through the system." The source said such an effort could create "dramatic breakthroughs in schedule and cost," adding that NASA's study dealt only with "nearly developed technology" rather than with "undeveloped technology."

The paper reports the source said Truly was "warned" in two council meetings with cabinet-level members that "NASA's approach was not the approach most members wanted to pursue."

SPACE NEWS reports NASA leaders have said in recent weeks they are frustrated about the space council's criticisms of the agency's performance, and say the council's guidance has been vague.

"Our report does address a number of challenging and very innovative technologies," said one NASA official. "Since the report was presented, we have continued to ask them what technologies they have in mind, and not a whole lot of ideas have been forthcoming."

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